

Middlebury Mead & Co

A M E R I C A N

RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, *Editor.*

ASSISTANT EDITORS:

JAMES T. HODGE, *For Mining and Metallurgy.*

CHARLES T. JAMES, *For Manufactures and the Mechanic Arts.*

M. BUTT HEWSON, *For Civil Engineering.*

SATURDAY, JUNE 1, 1850.

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ESTABLISHED IN 1831.

NEW-YORK:

PUBLISHED WEEKLY, BY

JOHN H. SCHULTZ & CO.

Room 12, Third Floor,

No. 136 Nassau Street.

FARMERS! ATTENTION!!

John Mayher & Co's
NEW AGRICULTURAL WAREHOUSE
AND SEED STORE,

197 WATER STREET, NEW YORK.

Where they have for Sale, the largest and most complete assortment of Farming Implements, ever offered for sale in this city—all of which they will sell 10 per cent. Cheaper than the same kind of Goods can be bought at any other house in the city. Our Goods are all Warranted to give satisfaction.

FARMERS wanting to purchase, will please call and examine our Stock before buying elsewhere.

Among our assortment may be found the Celebrated Highest Premium Eagle Ploughs! together with all the most approved Ploughs now in use.

Also,—Horse Powers, Threshing Machines, Fan Mills, Corn Shellers, Straw Cutters, Corn Mills, Seed Sowers, Churns, Ox Yokes, Ox Scrapers, Hay Rakes, Horse Rakes, Patent Chain Pump (that never freezes nor rusts), and other Pumps; in fact we have everything for Farming Purposes—together with Guano, Bone Dust and other Fertilizers.

JOHN MAYHER & CO.,
197 Water st., N. Y.

February 9, 1850.

N.B.—J. M. & Co. also continue their Old Stand, at 195 Front street, near Fulton Market.

STABILITY—SECURITY—PERPETUITY.

Mutual Life Insurance Co. of New York.

No. 35 WALL STREET.

A MILLION OF DOLLARS

Securely invested in Bonds and Mortgages on real estate in this city and Brooklyn, and stocks of the State and City of New York and United States Government.

The company declared a dividend of profits of fifty-two per cent. on all existing policies on the 31st of January, 1848.

All the Profits are Divided Among the Insured.

Persons may effect insurance on their own lives and the lives of others.

A married woman can insure the life of her husband, the benefits of which are secured by law for the exclusive use of herself or children.

Clergymen and all others dependent upon salaries or their daily earnings are specially invited to avail themselves of a resource whereby their surviving families may be secured from the evils of penury.

Pamphlets explanatory of the principles of Mutual Life Insurance, and illustrating its advantages, with forms of application, may be obtained at the office of the company, 35 Wall street, or of any of its agents.

TRUSTEES.

Jos. B. Collins,	David C. Colden,
Wm. J. Hyslop,	Alfred Edwards,
R. H. McCurdy,	Wm. Betts,
Fred. S. Winston,	Joseph Blunt,
C. W. Faber,	Isaac G. Pearson,
John P. Yelverton,	Henry Wells,
Theo. Sedgwick,	Wm. Moore,
Stacy B. Collins,	Zebedee Cook,
John H. Swift,	Jona. Miller,
John Wadsworth,	David A. Comstock,
S. M. Cornell,	Robert Schuyler,
Gouv. M. Wilkins,	James Chambers,
John V. L. Pruyn,	Joseph Tuckerman,
Fred. Whittlesey,	Moses H. Grinnell,
Charles Ely,	Wm. J. Banker,
John C. Cruger,	Eugene Duilh,
Walter Joy,	Francis S. Lathrop,
Alfred Pell,	John C. Thatcher.

JOSEPH B. COLLINS, President.
ISAAC ABBATT, Secretary. 3m9

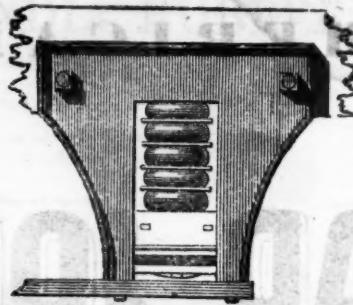
To the Proprietors of Rolling Mills and Iron Works.

THE Undersigned—Proprietors of Townsend's Furnace and Machine Shop, Albany—are extensively engaged in the manufacture of Machinery and fixtures for Iron, and Copper Rolling Mills, and Iron Works. Having paid particular attention to the manufacture of *Rolls* (Rollers), both *chilled* and *dry-sand*, they feel confident that they can execute orders for such castings in a satisfactory manner. And to give assurance of this, they beg leave to refer to the following named persons, proprietors and managers of some of the most extensive rolling mills in the country, viz: Jno. F. Winslow, J. Tuckerman, H. Burden, W. Burt, J. & J. Rogers, Saltus & Co., J. B. Bailey, L. G. B. Cannon, Hawkins & Atwater, etc., etc.

F. & T. TOWNSEND.

Albany, August 18, 1849.

FULLER'S PATENT INDIA RUBBER SPRING.



THESE SPRINGS ARE THE CHEAPEST, the lightest and most durable of any yet known. They are easily applied to new or old cars, and there is small possibility of any accident occurring to them.

Other parties through Mr. Ray set up claims to an India Rubber Spring which, though the same in principle, is very inferior in its working and durability. Actions are in progress for an Infringement on Fuller's Patent against parties using that Spring.

The superiority of Fuller's Spring over that claimed by Mr. Ray is fully established and has frequently been testified to. The following are from gentlemen who have had much experience with both Springs.

"It will afford me pleasure to recommend your springs to the companies in this region, in preference to Ray's which I am confident are inferior in mechanical arrangement to yours." JOHN M'RAE, Engineer S. Carolina R. R., Charleston.

"I do not hesitate to allow you to say that I concur in Mr. M' Rae's opinion that Ray's springs are inferior in mechanical arrangement to Fuller's. I repeatedly expressed that opinion long before Mr. M' Rae had seen your springs (as I believe) and entertain it still." WM. PARKER, Gen'l Supt. of Baltimore and Ohio R. R.

Office of Sup't Norwich & Worcester R.R. Co. }
December 26, 1849. }

"I most fully concur in the opinion of Jno. McRae, Engineer of S. Carolina Railroad, that 'Rays Springs are inferior to Fuller's Springs,' and shall with pleasure recommend them to all Railroad Companies for adoption. I have used both springs on this road and have no hesitation in saying that I should in all cases prefer Fuller's Spring."

SAM'L H. P. LEE, JR.,
Supt and Engineer.

Office B. & P. R. R. Co., }
Boston, 20th December, 1849. }

"This company have cars fitted up with both Ray's and Fuller's 'Metallic India Rubber Springs,' and I do not hesitate to say that Fuller's arrangement is very much superior to Ray's."

W. RAYMOND LEE, Supt.

The following result has been obtained by experiment upon one railroad.
A set of Trucks fitted
with Steel Springs cost \$190.77 and weigh 2355 lbs.
The same with Fuller's
Springs, . . . 131.71 " 1911 lbs.

Difference, . . . \$59.06 " 444 lbs.

Not only is there an advantage in the cost, but owing to the great reduction in weight, the car can be made lighter throughout, and so an enormous saving in weight may be effected in a Train.

AGENTS.

G. M. KNEVITT, 38 Broadway, N. Y.,
JOHN THORNLEY, 110 Chestnut St., Philad.
THE BOSTON BELTING CO., Milk st., Boston.
January 2, 1850.

American Cast Steel.

THE ADIRONDAC STEEL MANUFACTURING CO. is now producing, from American iron, at their works at Jersey City, N.J., Cast Steel of extraordinary quality, and is prepared to supply orders for the same at prices below that of the imported article of like quality. Consumers will find it to their interest to give this a trial. Orders for all sizes of hammered cast steel, directed as above, will meet with prompt attention.
May 28, 1849.

NOTICE TO

Superintendents of Railroads.

TYLER'S PATENT SAFETY SWITCH.—The undersigned would respectfully call their attention to his Patent Safety Switch, which from long trial and late severe tests has proved itself perfectly reliable for the purpose for which it was intended. It is designed to prevent the train from running off when the switch is set to the wrong track by design or accident. The single rail or gate switch is established as the best and safest switch for the ordinary purpose of shifting cars from one track to another, but it is liable to the serious evil of having one track open or broken when connected with the other. My improvement entirely removes this evil, and while it accomplishes this important office, leaves the switch in its original simplicity and perfection of a plain unbroken rail, connecting one track with the other ready for use.

The following decision of the Commissioner of Patents is respectfully submitted to Railroad Engineers, Superintendents, and all others interested in the subject.
P. B. TYLER.

(COPY.)

UNITED STATES PATENT OFFICE, }
Washington City, D.C., April 28th, 1846. }

SIR: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3d Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision. The testimony in the case is now open to the inspection of those concerned.

Yours respectfully, EDMUND BURKE,
Commissioner of Patents.

To Philos B. Tyler.

Any further information may be obtained by addressing P. B. TYLER, Springfield, Mass., or JOHN PENDLETON, Agent, 149 Hudson St., New York.

PHILADELPHIA CAR MANUFACTORY,

CORNER SCHUYLKILL 2D AND HAMILTON STS.,
SPRING GARDEN, PHILADELPHIA CO., PA.

Kimball & Gorton,

Having recently constructed the above works, are prepared to construct at short notice all kinds of

RAILROAD CARS, Viz:

Passenger Cars of all classes—Open and Covered Freight and Express Cars—Coal Cars—Hand Cars & Trucks of all descriptions.

They are also prepared to furnish Chilled Wheels of any pattern. Car Wheels & Axles fitted and furnished. Snow Ploughs and Tenders made to order. Steel and other Springs always on hand.

All orders will be filled at short notice, and upon as good terms as at any other establishment in the country. Omnibuses from the Exchange run within one square of the manufactory every 10 minutes during the day.
Philadelphia, June 16, 1849. 1y25

C. W. Bentley & Co.,

IRON Founders, Portable Steam Engine Builders and Boiler Makers, Corner Front and Plowman Sts., near Baltimore St. Bridge,

BALTIMORE, MARYLAND.

Their Engines are simple in their construction, compact and durable; they require no brick work in setting them, and occupy but a small space (a six horse power engine and boiler, standing on a cast iron plate of three by six feet.)

They also manufacture Major W. P. Williamson's new oscillating Engine; a superior article, combining cheapness and simplicity (one of which may be seen in operation at their shop.) Both of these engines are adapted to any purpose where power is required, and may be made of any capacity; and for economy in use of fuel are unsurpassed.

All kinds of machinery made to order. Steam Generators, Force Pumps, Wrought Iron Pipes and Fittings for Steam, Water, Gas, etc., constantly on hand,
Baltimore, June 6, 1849.

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists, Philadelphia.
Jan. 20, 1849.

Coal.

CUMBERLAND SEMI-BITUMINOUS COAL
superior quality for Locomotives, for sale by
H. B. TEBBETTS,
No. 40 Wall St., New York.
May 12, 1849. 1m19

IRON BRIDGES, BRIDGE & ROOF BOLTS,
etc. STARKS & PRUYN, of Albany, New York.
having at great expense established a manufactory with every facility of Machinery for Manufacturing Iron Bridges, Bridge and Roof Bolts, together with all kinds of the larger sizes of Screw Bolts, Iron Railings, Steam Boilers, and every description of Wrought Iron Work, are prepared to furnish to order, on the shortest notice, any of the above branches, of the very best of American Refined Iron, and at the lowest rates.

During the past year, S. & P. have furnished several Iron Bridges for the Erie Canal, Albany Basin, etc.—and a large amount of Railroad Bridge Bolts, all of which have given the most perfect satisfaction.

They are permitted to refer to the following gentlemen:

Charles Cook, Nelson J. Beach, Jacob Hinds, Willard Smith, Esq., Messrs. Stone & Harris, Mr. Wm. Howe, Mr. S. Whipple,	Canal Commissioners of the State of New York. Engineer of the Bridges for the Albany Basin. Railroad Bridge Builders, Springfield, Mass. Engineer & Bridge Builder, Utica, N. Y.
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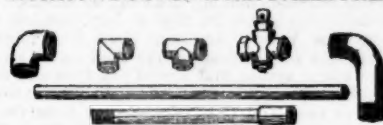
January 1, 1849.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T. L., and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

To Railroad Companies, etc.



The undersigned has at last succeeded in constructing and securing by letters patent, a Spring Pad-lock which is secure, and cannot be knocked open with a stick, like other spring locks, and therefore particularly useful for locking Cars, and Switches, etc.

Companies that are in want of a good Pad-lock, can have open samples sent them that they may examine and judge for themselves, by sending their address to

C. LIEBRICH,
46 South 8th St., Philadelphia.

November 3, 1849.

Mattewan Machine Works.

THE Mattewan Company have added to their Machine Works an extensive LOCOMOTIVE ENGINE department, and are prepared to execute orders for Locomotive Engines of every size and pattern—also Tenders, Wheels, Axles, and other railroad machinery, to which they ask the attention of those who wish such articles, before they purchase elsewhere.

STATIONARY ENGINES, BOILERS, ETC.,
Of any required size or pattern, arranged for driving Cotton, Woollen, or other Mills, can be had on favorable terms, and at short notice.

COTTON AND WOOLLEN MACHINERY,
Of every description, embodying all the modern improvements, second in quality to none in this or any other country, made to order.

MILL GEARING,

Of every description, may be had at short notice, as this company has probably the most extensive assortment of patterns in this line, in any section of the country, and are constantly adding to them.

TOOLS.

Turning Lathes, Slabbing, Planing, Cutting and Drilling Machines, of the most approved patterns, together with all other tools required in machine shops, may be had at the Mattewan Company's Shops, Fishkill Landing, or at 66 Beaver street, New York.

WM. B. LEONARD, Agent.

HEAD QUARTERS FOR RUBBER GOODS.



The Union India Rubber Company,

MANUFACTURERS AND DEALERS IN EVERY VARIETY OF

GOODYEAR'S PATENT METALLIC RUBBER FABRICS,

Which they offer on the most liberal terms at their Warehouse,

NO. 19 NASSAU STREET, NEW YORK.

Articles which this Company has the exclusive right to make comprise in part

Beds, Pillows, Cushions, Caps, Tents, Bottles, Tubs, Caps, Pants,	Overcoats, Leggins, Syringes, Canteens, Buoyos, Maps, Sheet Gum, Tarpaulins, Life Jackets,	Life Preservers, Boat Floats, Souwesters, Gun Cases, Portable Boats, Horse Fenders, Water Tanks, Army Goods, Navy Goods,	Mail Bags, Breast Pumps, Saddle Bags, Clothing of all kinds, Carriage Cloth, assor. Hospital Sheetting, Mattress Covers, Bathing Caps, Baptismal Pants,	Camp Blankets, Travelling Bags, Wading Boots, Horse Covers, Piano Forte Covers, Railroad Gum, Hose, all kinds, Shower Baths, Chest Expanders.
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Together with all new applications of the Patent Rubber, which with Boots and Shoes, Packing, Machine Belting, Suspenders, Gloves and Mittens, Tobacco Wallets, Balls, Baby Jumpers, Elastic Bands, etc., etc., will be sold to the Trade at Factory prices.

* All orders for special articles to be manufactured, should be accompanied with full descriptions and drawings.

October 20, 1849.

RAILROAD

India-rubber Springs.

If any Railroad Company or other party desires it, the NEW ENGLAND CAR COMPANY will furnish India-rubber Car Springs made in the form of washers, with metallic plates interposed between the layers, or in any other form in which they can be made; in all cases guaranteeing the right to use the same against any and all other pretended rights or claims whatsoever.

F. M. Ray, 98 Broadway, New York.
E. CRANE, 99 State Street, Boston.
1849.

Brown's Old Established SCALE WARE HOUSE,

NO. 234 WATER ST., NEW YORK.

THE Subscriber, Practical Manufacturer of Scales of every description, respectfully asks the attention of Railroad Companies to his Improved Wrought Iron Railroad Track and Depot Scales which for strength, durability, accuracy, convenience in weighing, and beauty of workmanship, are not surpassed by any others in this country.

He is aware that this is rather a bold assertion for him to make, yet he can say with confidence that they have but to be tried to give them precedence over all others.

J. L. BROWN.

Bank Scales made to order, and all Scales of his make Warranted in every particular.

References given if required.

THE NEWCASTLE MANUFACTURING Co. continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack Screws, Wrought Iron Work and Brass and Iron Castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast Wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,

President of the Newcastle Manuf. Co.

DEAN, PACKARD & MILLS,

MANUFACTURERS OF ALL KINDS OF

RAILROAD CARS,

SUCH AS

PASSENGER, FREIGHT AND CRANK CARS,

— ALSO —

SNOW PLOUGHS AND ENGINE TENDERS OF VARIOUS KINDS.

CAR WHEELS and AXLES fitted and furnished at short notice; also, STEEL SPRINGS of various kinds; and

SHAFTING FOR FACTORIES.

The above may be had at order at our Car Factory,

REUEL DEAN,
ELIJAH PACKARD,
ISAAC MILLS, } SPRINGFIELD, MASS.
1848

Iron Safes.

FIRE and Thief-proof Iron Safes, for Merchants, Banks and Jewelers use. The subscriber manufactures and has constantly on hand, a large assortment of Iron Safes, of the most approved construction, which he offers at much lower rates than any other manufacturer. These Safes are made of the strongest materials, in the best manner, and warranted entirely fire proof and free from dampness. Western merchants and the public generally are invited to call and examine them at the store of E. Corning & Co., sole agents, John Townsend, Esq., or at the manufactory.



Each safe furnished with a thief-detector lock, of the best construction. Other makers' Safes repaired, and new Keys and Locks furnished at the shortest notice.

H. W. COVERT

cor. Steuben and Water sts. Albany

August 24, 1848.



NEW YORK IRON BRIDGE COMPANY.

The Bridges manufactured by this Company having been fully tested on different Railroads, by constant use for more than two years, and found to answer the full expectations of their most sanguine friends, are offered to the public with the utmost confidence as to their great utility over any other Bridge now known.

The plan of this Bridge is to use the iron so as to obtain its greatest longitudinal strength, and at the same time it is so arranged as to secure the combined principles of the Arch, Suspension and Triangle, all under such controlling power as causes each to act in the most perfect and secure manner, and at the same time impart its greatest strength to the whole work.

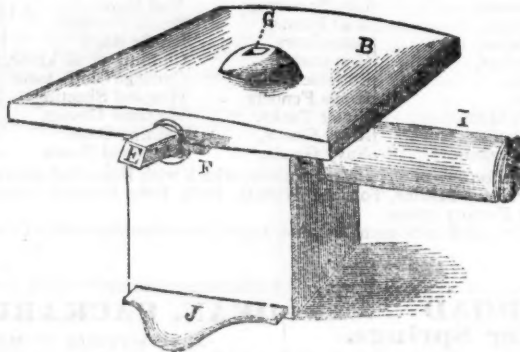
The NEW YORK IRON BRIDGE COMPANY are prepared to furnish large quantities of Iron Bridging for Railroad or other purposes, at short notice, and at moderate prices.

Models, and pamphlets giving full descriptions of the above BRIDGE, with certificates based on actual trial from undoubted sources, will be found at the office of the Company, 39 Jauncey Court, Wall st., or of W. RIDER & BROTHERS, 19 Nassau Street, where terms of contract will be made known, and where orders are solicited.

August 29, 1849.

M. M. WHITE,
Agent for the Company.

E. Harris' Patent Rotary Blacksmith Tuyere.



LETTERS Patent were issued January 9, 1849, to E. HARRIS, of Springfield, for an Improved Rotary Blacksmith Tuyere. Since that time there have been some hundreds put in operation, giving satisfaction and full proof of superiority over all others.

This Tuyere is so arranged that by one movement it can be changed from the largest work to the smallest; at the same time the fire is changed in proportion, thereby making a great saving in coal. Words cannot convey the full merits of this Tuyere; nor is it deemed necessary to speak in disparagement of other Tuyeres, as every smith is capable of judging for himself, and will give merit where merit is due.

I will simply say that there has not been a single instance where I have had my Tuyere put in use but it has given full satisfaction, and is recommended by all who have used them, as being superior to any other ever introduced. I would invite all to give them a trial; and the names of those using them being given, I hope it may induce others to try them and commend themselves.

Western Railroad Shop,	Springfield, Mass.
" "	Pittsfield, "
Connecticut val. "	Springfield "
" "	N. Hampton "
Hartford "	Hartford, Conn.
New Haven "	New Haven "
Norwich and Worcester,	Norwich "
N. York and N. Haven,	New Haven "
Saratoga and Whitehall,	Saratoga, N. Y.
Vermont Central,	
Hudson and Berkshire,	Hudson, Mass.
L. Kingsley,	Canton, "

Hadley Falls Co. Ireland,	W. Springfield, Mass.
Sidney Patch,	Boston, "
Ames Manuf. Cor.,	Chickopee, "
American Machine w'ks,	Springfield "
Dean, Pickard & Mills	" "
G. Frank Bradley,	N. Haven, Conn.
Andrew Baird,	" "
Collis & Lawrence	" "
Slate & Brown,	Windsor Locks,
Gage,	Nashua, N. H.
Machine shop,	Manchester, "
Louis F. Lanney,	Baltimore, Md.
J. H. Baerdid,	179 Chambers st. N. Y.
J. Fanning	Rochester, "
G. W. Hunt	41 Gold st. "
Chamberlain & Waldo,	" "
P. S. Burges, carriage maker,	" "
Samuel Miller,	" "
J. Leggett,	Steverson falls, "
J. E. Harris,	Hillsdale, "
John L. Graham,	Albany, "
David Dalsell,	South Egremont, Mass.
Roys & Wilcock,	Berlin, Conn.

Agents for the sale of Tuyeres:
B. B. Stevens in New York and Connecticut.
A. J. VanAllen has the Agency for the Western and Southern States, and is now travelling through those States. Any communication addressed to the patentee will receive prompt attention.

E. HARRIS, Patentee,
Springfield, Mass.

November 23, 1849.

Railroad Lanterns.

COPPER and Iron Lanterns for Railroad Engines, fitted with heavy silver plated Parabolic Reflectors of the most approved construction, and Solar Argand Lamps; manufactured by

HENRY N. HOOPER & CO.,
No. 24 Commercial St. Boston.

August, 16, 1849.

6m33

Gas Fixtures.

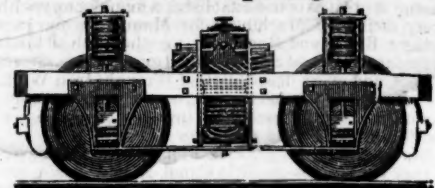
FIXTURES for Burning Gas for Lighting Public Buildings, Private Dwellings, Stores and Factories, manufactured by the subscriber in great variety. Orders by Mail, or left at the Factory on Causeway street, will be promptly attended to.

HENRY N. HOOPER & CO.

Boston, March 23, 1850.

6m13

F. M. Ray's Patent India-rubber Car Springs.



India-rubber Springs for Railroad Cars were first introduced into use, about two years since, by the inventor. The New England Car Company, now possesses the exclusive right to use, and apply them for this purpose in the United States. It is the only concern that has tested their value by actual experiment, and in all arguments in favor of them, drawn from experience of their use, are in those cases where they have been furnished by this company. It has furnished every spring in use upon the Boston and Worcester road, and, in fact, it has furnished all the springs ever used in this country, with one or two exceptions, where they have been furnished in violation of the rights of this company; and those using them have been legally proceeded against for their use, as will invariably be done in every case of such violation.

The Spring formed by alternate layers of India-rubber discs and metal plates, which Mr. Fuller claims to be his invention, was invented by Mr. Ray in 1844.—In proof of which we give the deposition of Osgood Bradley, of the firm of Bradley & Rice, of Worcester, Mass., car manufacturers, and men of the highest respectability. In this deposition, in relation to the right of parties to use these springs, he says:

"I have known Mr. Ray since 1835. In the last of May or the commencement of June, 1844, he was at my establishment, making draft of car trucks. He staid there until about the first of July, and left and went to New York. Was gone some 8 or 10 days, and returned to Worcester. He then on his return said he had a spring that would put iron and steel springs into the shade. Said he would show it to me in a day or two. He showed it to me some two or three days afterwards. It was a block of wood with a hole in it. In the hole he had three pieces of India-rubber, with iron washers between them, such as are used under the nuts of cars. Those were put on to a spindle running through them, which worked in the hole. The model now exhibited is similar to the one shown him by Ray. After the model had been put into a vice, witness said that he might as well make a spring of putty. Ray then said that he meant to use a different kind of rubber, and referred to the use of Goodyear's Metallic Rubber, and that a good spring would grow out of it." There are many other depositions to the same effect.

The history of the invention of these springs, together with these depositions, proving the priority of the invention of Mr. Ray, will be furnished to all interested at their office in New York.

This company is not confined to any particular form in the manufacture of their springs. They have applied them in various ways, and they warrant all they sell.

The above cut represents precisely the manner in which the springs were applied to the cars on the Boston and Worcester road, of which Mr. Hale, President of this road speaks, and to which Mr. Kneivt refers in his advertisement. Mr. Hale immediately corrected his mistake in the article quoted by Mr. Kneivt, as will be seen by the following from his paper of June 8, 1848. He says:

INDIA-RUBBER SPRINGS FOR RAILROAD CARS.—"In our paper yesterday, we called attention to what promises to be a very useful invention, consisting of the application of a manufacture of India-rubber to the construction of springs for railroad cars. Our object was to aid in making known to the public, what appeared to us the valuable properties of the invention, as they had been exhibited on trial, on one of the passenger cars of the Boston and Worcester railroad. As to the origin of the invention we had no particular knowledge, but we had been informed that it was the same which had been introduced in England, and which had been subsequently patented in this country; and, we were led to suppose that the manufacturers who have so successfully applied this material, in the case to which we referred had become possessed of the right to use that patent. It will be seen from the following communication, addressed to us by a member of the company, by which the Worcester railroad was supplied with the article upon which our remarks were based, that we were in an error, and that the springs here introduced are an American invention, as well as an American manufacture. How far the English invention may differ from it we have had no opportunity of judging."

AMERICAN RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

ESTABLISHED 1831.

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SECOND QUARTO SERIES, VOL. VI., No. 22! SATURDAY, JUNE 1, 1850 [WHOLE No. 737, VOL. XXIII.]

ASSISTANT EDITORS,

J. T. HODGE, *For Mining and Metallurgy.*
GEN. CHAS. T. JAMES, *For Manufactures and the
Mechanic Arts.*
M. BUTT HEWSON, C. E., *For Civil Engineering.*

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An Essay on Pen and Pocket Cutlery,

Embracing a Detailed Description of the Mechanical, Chemical, and Manual Operations Performed on Certain Raw Materials, to Convert them into the Means, Implements, and Materials, for Manufacturing Pen and Pocket Knives.

BY A. L. HOLLEY.

Continued from page 330.

CHAPTER II.—IRON, STEEL, PROCESS OF MANUFACTURING, WOOTZ, ALLOYS, DAMASCUS BLADES, SUPPOSED METHODS OF MAKING, ANECDOTES, VARIETIES OF STEEL.

The combining volume of iron is 28, and its specific gravity when hammered 7.843. It is the most useful of all metals, and found in abundance in all parts of the world, both in the animal, vegetable and mineral kingdoms. Though not as highly malleable as silver and gold, it is exceedingly ductile, and may be drawn into wire the thousandth part of an inch in diameter. It is attracted by the

magnet, and may be made permanently magnetic in a much greater degree than any other metal.—Iron has in few instance been found in its native state mixed with some earthy substance, copper and lead. *Meteoric iron*, so called because it was supposed to have fallen from the moon or some heavenly body, has also been obtained alloyed with other metals. Native iron is usually soft, malleable and ductile, not materially differing from that reduced from ores, though it is not as liable to oxidation. Iron is reduced from ores by depriving it of its oxygen by fire. The ores, together with carbon in some form, are subjected to great heat, and the latter having a greater affinity for oxygen, the iron is reduced while the charcoal or the carbon becomes an acid or an oxide, and passes off, or as is commonly said is burned up. This operation is performed in vast furnaces, the size and working of which is probably familiar to the reader, and therefore need not be described here. The ore and coal, together with a portion of fine lime stone, which acts as a flux by combining with the clay and forming a fusible compound which runs away below in the form of cinder, are together put in the fire in "charges," and from two to six or more tons of pig iron made at a casting. Ores, in England, usually contain from 18 to 55 per cent. of iron, before calcined, or roasted. Carbonic acid and clay, and usually water, sulphur, silic, and perhaps a little arsenic, are ingredients in the composition. The ores are roasted, or as it is generally termed in this country *burned*, in kilns to free them from impurities, and lose from 20 to 30 per cent. in weight by this operation. In this country and in England from 2½ to 3 tons of ore, smelted with the charcoal of 3½ cords of wood, or nearly 3 tons 15 cwt. of bituminous coal, will make one ton of pig iron. Bituminous coal is *coked* before it is used, which will afterwards be described. A ton of raw coal will produce about 13 or 14 cwt. of coke. Iron smelted by charcoal is particularly adapted to the making of steel, but on account of the expense it is not generally manufactured in England. The texture of iron is fibrous, and is very difficult of fusion, melting at 2754° Fahrenheit, and requiring the greatest heat of a wind furnace. The two principal varieties of cast iron are *white* and *gray* iron, the former hard and brittle, the latter soft and used for making steel and such castings as require turning, drilling and planeing. Some varieties of cast iron are purer than others, some containing traces of

sulphur, phosphorus, silicium, calcium, manganese, and always carbon and oxide of iron. It is chiefly refined by a process called puddling, which consists in subjecting it to the intense heat of a reverberatory furnace, where as it melts it is gradually worked about, till it becomes less and less susceptible of fusion, and at length grows tenacious and pulverulent. The mass while stirred emits a bright blue flame, caused by the burning up of some of its impurities. The fire at length agglutinates the metal, which is immediately transferred to rolling mills, or hammered or rolled by machines into balls, and then passed through the rolling mills, where they are still further purified and formed into bars of different sizes. Both wrought and cast iron are used in the manufacture of cutlery, the former in the shape of nail rods and wire, and the latter for the making of steel and occasionally handles.—Probably the most valuable of all compounds of iron is STEEL, as it possesses the quality of being hardened and tempered, and is thus particularly adapted to the making of cutlery. Steel is a composition of iron and a small portion of carbon, with a slight admixture of oxide of iron, it is therefore a carburet of iron. The principal varieties of steel the art of manufacturing which is known, are blistered and cast steel. The first mentioned kind is made by the process called cementation. A furnace of conical form, with two fire brick cases, capable of containing several tons of iron, is constructed, beneath which is a long grate on which the fuel is placed. On the bottom of the case is placed a layer of pulverised hardwood charcoal, then a layer of wrought bars of pure soft iron, and thus the bars and charcoal dust alternate to the top of the furnace. Flues are also carried through, which are covered with clay to keep the furnace air tight. The whole is kept at a high temperature, usually a red heat, for eight or ten days. The carbon or charcoal is thus gradually absorbed by the iron, probably in a gaseous state. It has not been certainly ascertained whether the union of the carbon with the iron is chemical or mechanical, but it is supposed by some to be both, for the reason that the *damasked surface* of some celebrated sword blades is owing partly to a chemical and partly to a mechanical union. But this appearance may be caused by chemical changes alone, acting partially on the original carburet and depositing carbon unequally. This steel is blistered by the escape of the air and gas from the interior, and hence its

name. Towards the end of the process constant and careful watching is necessary, for by the absorption of too much carbon the bars may be suddenly fused. The progress of cementation is discovered by withdrawing and breaking a bar, called the "test bar," which must be colored alike in the centre and at the surface. When the steel is completely made the fire is extinguished and the furnace left to cool, which takes from six to eight days. These bars are repeatedly broken, welded and drawn out, till the specific gravity and fineness are increased, and great care is taken during the operation, to preserve the surface from oxidation. Steel to be benefitted by hammering should be heated to a temperature neither too hot nor too cold, for in the first instance only the shape is changed, and in the last the particles are dislocated and scaled off, but at a low cherry red the metal is condensed and thus made better. There are two methods of making cast steel. The following is the receipt of an old English steel manufacturer, viz: "Re-melt blistered steel of a proper hardness in crucibles, together with a handful of fine charcoal and 2 ozs. of manganese to every 23 lbs. of metal; cast into ingots and weld and draw out until it is sufficiently fine." The other method is by melting soft iron (Swedish and Russian are the best in use) with powdered charcoal, and a flux of vitreous and carbonaceous substances in a large crucible placed in a wind furnace. When the fusion is complete, it is cast into small bars or ingots, which are subjected to the same process of repeated welding through which are passed the bundles of blistered steel. Cast steel is harder and more elastic, it receives a higher polish, and has a much closer texture than common blistered steel.

Another mode of applying carbon is by a stream of gas, but this is not in general use. The most skilful manipulation is requisite as the point of sufficient fusion is reached, and it must be performed under severe exposure to the most intense heat. Wootz, a cast steel from India, has been very successfully employed in the manufacture of cutlery in England, which the experiments of Messrs. Stodart and Faraday have shown to be an alloy of steel with small quantities of silicium and aluminum. Wootz is made by placing alternate layers of wood and malleable iron in a furnace somewhat resembling our furnaces for cementation, and converted into steel in the same manner that common blistered steel is made. It is then fused, and crystallises in the crucibles, in which state it is imported. When remelted and passed through the same operations to which our steel is subjected, it is superior to all known steel. Some have attributed its peculiar virtue to its cementation being performed with wood, but it is evidently made from iron reduced from very superior ores, or owes its excellence to its being alloyed with other metals. Great care is necessary, or it is easily ruined when fused a second time. Numerous alloys of steel have been made, among the most useful of which is a compound of 500 parts steel to one of silver. If a larger proportion of silver is used it does not smoothly and evenly combine with the steel. The alloy of steel with 100 parts of platinum, though less hard, is more tough than the above compound, therefore very valuable, combining tenacity and hardness. Steel alloyed with rhodium exceeds the two former in hardness, and compounded with osmium, palladium and iridium, is also excessively hard, but on account of the rarity and expense of these metals, it cannot be successfully applied to practical purposes.

A compound of gold and steel, is also of great utility in some cases.

As before mentioned, iron produced from meteors is less susceptible of oxidation than any other, probably owing to its combination with nickel. Perhaps an alloy made by combining these two metals might be highly valuable. The art of making steel equal or similar to the Damascus sword blades, is now lost, and was perhaps never thoroughly understood in Europe, though various explanations have been given in regard to the character and structure of these celebrated weapons. They were never known to break in battle, and always retained an edge sufficiently hard and powerful to cut through helmets, armor, and all impediments. It has been supposed, on account of their striated appearance, that they were formed by extremely thin sheets of iron and steel wound with fine soft iron wire, and welded firmly together. Some believe that they were made by winding ingots of hard steel alone with tenacious iron fiber and cementing them at a great heat, while it is thought by others that they were the product of fine iron converted into steel by the carbonic acid gas, into which diamonds turn when burned up, these being the purest carbon known. But this theory is incorrect, from the fact that diamonds were first burned by Florentine Academicians in the year 1649, and the products of this burning were first examined by Lavoisier in 1772, long after the Crusades, when Damascus blades were in use. Many persons are confident that this metal was an alloy of gold and steel, and others that it was a compound of silver and steel, the chemical and mechanical unions together causing the damasked appearance, while others affirm that they were alloys of either platinum and steel, and thus both hard and tenacious, or of palladium, osmium, or some similar metal, with iron or silver and steel. Perhaps the most probable method of constructing these blades, was by the repeated and continued hammering of hard steel of a superior quality, and soft very tough iron fiber, running in all directions, at a cherry red, till the fineness and specific gravity were greatly increased, the steel holding the edge and doing the execution, and the fibers of iron, by virtue of their tenacity, binding the whole together, and preventing its breaking.

Many anecdotes are related in regard to the wonderful powers of these and other swords, which, though we cannot listen to them with unshaken credulity, are perhaps based on truth. One only will be mentioned. Two celebrated warriors were testing the virtues of their swords. The first commanded a thick bar of iron to be laid on the block, which he cut asunder by one tremendous blow of his double handed broad sword, without breaking, bending, or injuring its edge! The other one then called for a quantity of down which he blew upwards, and as it slowly fell it was cut in two by one stroke of his cimeter. Some one has added the following supplement to this story, which though highly interesting, is hardly credible. The first general not being satisfied, the latter ordered an attendant to come forward, across whose neck he drew the back of his sword, and asked, "Did you feel that?" The servant shook his head. He then drew the edge across his throat, asking the same question. As the victim attempted to reply by the former sign his head dropped into his hands!—Steel is used for the manufacture of an almost innumerable variety of blades, which are designed for numerous and entirely different operations, and therefore various degrees of tenacity and hardness are required. The steel of a lancet must necessarily

be hard and susceptible of a fine edge, being used for purposes that require the most exact and perfect operations, consequently very brittle, while the same metal in the form of a trowel must be exceeding tenacious, or it will break in trimming bricks, but the fine edge is not at all necessary. Probably almost every cutting instrument has some quality peculiar to itself. Pen, and the smaller varieties of pocket blades, should be hard and very fine grained, while the larger kinds should be a little more tenacious, though their thickness will usually prevent their breaking by hard usage. Both cast and blistered steel are in constant use in the manufacture of knives, the former for blades and tools, and often for backs, springs, and other fine work, and the latter almost wholly for springs, though occasionally for handles, implements and machinery.

To be continued.

English Railways.

The past week has been an eventful era in the history of the railway share market, as marked by a greater depression in price of the principal stocks than we have ever yet had the undesirable duty to record. The Great Western shares, on Tuesday last, changed hands at 46, the lowest price ever before quoted, which shares in August, 1845, were sold at 226; while the London and North Western, Eastern Counties, South Western, South Eastern, and, in fact, shares in all the principal companies, have been in an equally depressed condition. A most extraordinary circumstance in connection with this description of security is, that even the Indian lines, with 5 per cent. guaranteed by the East India Company, can scarcely find purchasers at a trifle above *par*; while India bonds, paying out 3½ per cent. are 4½ premium, the interest on which is at any time liable to be reduced. With a population increasing at the rate of nearly 500,000 a year, or 1300 a day, provisions cheap, a rapid increase in the development of trade and commerce, and with every element which we can imagine necessary for the progressive increase of traffic and improvement of railway property in full operation, for months the fall has gone steadily on, nor is it possible for the most foresighted to foretell whether the lowest ebb has yet been reached or not. In this spirit-depressing, and, in fact, extraordinary state of railway affairs, neither directors or shareholders appear to have the slightest idea where to seek a remedy. The former, by allowing the most unreserved inspection of accounts, and other acts, may endeavor to inspire confidence, and the latter may afford it; but there appears an incubus riding on the shoulders of railway property as an investment, the nature of which is beyond the power of either party to discover.

In such a period of despondency, when forced sales of railway property are carrying broken hearts and absolute ruin into many a home, we are glad to observe that a pamphlet has just appeared from the pen of Mr. Adams, of the Fairfield Iron Works, Bow, "On Road Progress, and Practical Economy in Fixed Plant and Rolling Stock," in which the author sums up the causes of railway decline under two heads—bad legislation and bad mechanism. Mr. Adams is known as an ingenious mechanical inventor, manufacturer, and patentee, and as the author of more than one work besides the present on railway affairs; and the volume before us comes most opportunely at the moment for public consideration. The great expenses and losses under the first head are comprised in legal and parliamentary expenses cost of land and compensation, and the choice of injudicious and non-paying routes; forming together large sums, which, on all the present lines will, at no very distant day, have to be written off the accounts as profitless, or wasted capital, never to be retrieved.

Under the second head—bad mechanism—he shows how the use of disproportionately heavy engines and heavy carriages have crushed and broken up the permanent way, destroying the rails in one-fifth of the time they otherwise would have lasted, breaking down bridges, and causing endless and inordinate expense. He demonstrates that the

only way to extricate railway property from the slough of despond into which it has fallen is to give up the absurdity of heavy engines and carriages, and adopt light engines and light trains. This, he states as his conviction, can be easily effected, ensuring greater speed and safety, at one-third the previous cost, with a reduction of 50 per cent. in the working expenses; and that, by such a system, railways are capable of indefinite extension, carrying them not only within reach of every village in the kingdom, but even making them profitable in uninhabited districts, by the encouragement which will be thus afforded for more extended land cultivation. It is stated that, under the present system, the dead weight to be moved in proportion to the live, or paying weight, is 26 to 1—an enormity by itself sufficient to account for the great depreciation in railway profits.

Mr. Adams states that under his proposed plan, it would not exceed 3½ to 1; and that new double line railways can be formed with rolling stock complete, for £7,000 per mile. This view of the case is not mere theory, the advantages of light engines and trains have been substantially proved on the Eastern Counties, North Kent, Bristol and Exeter, and Cork and Bandon lines, and are supported by many of the most eminent and experienced engineers of the day. However disheartening may appear the obligation to break up the old stock when replaced by new (for it cannot be sold), and however difficult the obtaining of funds for constructing the new stock, it is everywhere apparent that, until some fundamental change takes place in the entire principle of railway propulsion, profits must continually decrease, dividends diminish, and the whole system gradually descend the stream to an ocean of bankruptcy and ruin.—*Min. Jour.*

REPORT OF THE COMMISSIONERS APPOINTED TO
INQUIRE INTO THE APPLICATION OF IRON
TO RAILWAY STRUCTURES.

Continued from page 334.

The bars which were experimented upon by transverse pressure, were of sections varying from 1 inch square to 3 inches square, and of various other sections, and the actual breaking weights show that the strength of a bar 1 inch square should not be taken as the unit for calculating the strength of a larger casting of similar metal, although the practice of doing so has been a prevalent one, for it appears that the crystals in the portion of the bar which cools first are small and close, whilst the central portion of bars 2 inches square, and 3 inches square, is composed of comparatively large crystals, and bars of 3 inches square in section, planed down on all sides alike to ¼ of an inch square, are found to be very weak to resist both transverse and crushing pressure. Hence it appears desirable, in seeking for a unit for the strength of iron of which a large casting is to be made, that the bar used should equal in thickness the thickest part of the proposed casting.

The performance of these various experiments has been greatly facilitated by the permission which was liberally granted to us by the Lords Commissioners of the Admiralty, to make use of Portsmouth Dockyard in carrying on our investigations, in addition to which, however, we found it necessary to hire for several months some premises in Lambeth. This was found requisite for the performance of those portions of the experimental inquiry which had been undertaken by Eaton Hodgkinson, Esq. Although we are aware that, to point out the labors of individual members of the commission would be impossible, and that it may appear invidious to single one out for praise, we cannot resist the expression of our thanks to the above-named gentleman, for the zeal and intelligence with which he has carried out the remarkable series of experiments which are detailed in the Appendix to this Report, and which constitute a large proportion of those which have been already described.

In addition we have obtained, from many of the iron masters, information respecting the various processes employed by them in the manufacture of their irons, and the effect of such processes upon the strength and properties of the material produced; and we have also made careful inquiries of civil engineers with respect to the qualities and mixtures of iron preferred by them, for the large castings used in the construction of railway bridges,

and to the respective properties of hot-blast and cold-blast iron; this investigation has been greatly facilitated by the liberality and candor with which these gentlemen have communicated to us the results of their experience.

As no map of the kingdom had been constructed representing the districts in which iron is found and worked, we applied to the officers of the Museum of Practical Geology for their assistance, and they caused one to be prepared expressly to accompany this report, in which the principal furnaces now in blast are shown.

Great differences of opinion exist with respect to the best qualities and mixtures of iron; and after all, it appears that those employed for large castings depend practically so much upon the commercial question of relative cost, that engineers are rarely able to select the very best material. It is generally admitted that engineers have no guarantee that the mixture for which they have stipulated in a contract shall be that used by the founder, and no certain test by which to determine whether a given piece of iron has been manufactured by hot or cold blast. A very good protection appears to be contained in the recommendation of Mr. Fox, that engineers, in contracting for a number of girders, should stipulate that they should not break with less than a certain weight, (leaving the mixture to the founder,) and cause one more than the required number to be cast. The engineer may then select one to be broken, and if it break with less weight than that agreed upon, the whole may be rejected.

At the beginning of the railway system, the bridges were naturally constructed upon similar principles to those which had been already employed for common roads or aqueducts. Some of these ordinary constructions have proved inadequate to sustain the enormous loads and vibrations of railway trains. Some have been considered too expensive; others, as the suspension bridges, have been found wholly unfitted for railway purposes. Moreover, the necessity of preserving the level of a railway as much as possible, combined with that of passing under or over existing canals, rivers, or roads, has created a demand for those forms of bridges which admit of being kept as low as possible, consistently with the proper headway or passage below; or, in other words, of making the least possible difference of level between the road or stream which the bridge has to carry and that which it has to cross.

From these causes, combined with the innumerable opportunities of building new bridges which the railways have given occasion to, and a constant endeavor to reduce the expense of building them, a variety of new constructions have been proposed and essayed, most of them of great merit and value, while others appear to be of very doubtful stability.

On the whole, the art of railway bridge building cannot be said to be in that settled state which would enable an engineer to apply principles with confidence. We have, therefore, thought it our duty to inquire into the present methods of railway bridge building, to collect in evidence the opinions and practice of the leading members of the profession of civil engineers upon this branch of construction, and especially with respect to the form and proportions of simple cast iron girders, the practical limits to the employment of such girders, the methods of combining them with the rest of the structure, the various forms of compound girders, the expediency of several combinations of wrought iron with cast iron; and, finally, the comparative merits of plain girders, and of other forms in which the principles of the arch, or other methods of giving stiffness, are introduced.

The simplest bridge, and that which admits of the greatest amount of headway at a given elevation, is, undoubtedly, the straight girder bridge.

The length of a simple cast iron girder appears to be limited only by the power of making sound castings, and the difficulty of moving large masses. Thus the practical length has been variously stated to us as 40, 50, and 60 feet. The form resulting from Mr. Hodgkinson's former experiments on this subject, is universally admitted to be that which gives the greatest strength; but the requirements of construction compel many variations from it, especially in the ratio between the top and bottom

flanges. Moreover, the convenience and the necessity of keeping the roadway for rails as low as possible, has introduced a practice of supporting the beams which sustain the rails upon one side of the bottom flanch. The pressure of the roadway, and of the passing loads, being thus thrown wholly on one side of the central vertical web of the girder, produces torsion (which is not always taken into account in determining the proportions of the girder.) The existence of this torsion is admitted on all hands, and various schemes are employed to counteract and diminish it; but the form of a girder that will effectually resist this disturbing force, without incurring other evils, still remains a desideratum.

The requisite length of girders is increased by the excessive use of skew bridges; and it is much to be regretted that difficulties should often be thrown in the way of altering the course of existing roads and canals when the line of a proposed railway happens to cross them at an acute angle. Partly from these causes, and partly from a little indulgence in the pride of construction, skew bridges may be found, of which, from the obliquity of the bridge, the girders are more than double the length that would be required by the direct span of the opening to be crossed.

When the span of the opening, or other circumstances render the use of single straight girders inadvisable, straight girders built up of several separate castings bolted together, and sometimes trussed with wrought iron tension rods, are largely employed, and necessarily with great varieties of construction. By these means the girders may be extended to spans of upwards of 120 feet.

When wrought iron is combined with cast iron in the manner of trussing, several difficulties arise from the different expansions of the two metals, and the difference of their masses, which causes the wrought iron rods to be more rapidly affected by a sudden change of temperature than the cast iron parts. The constant strain upon the wrought iron tends to produce a permanent elongation, and hence tension rods may require to be occasionally screwed up. We have sought for opinions and information upon all these questions, and these show that the greatest skill and caution are necessary to insure the safe employment of such combinations. It is not admitted that the vibration of railway trains would loosen or injure the bolts or rivets of compound girders. Nevertheless, wood, felt, or other similar substances, have occasionally been introduced between surfaces to diminish the communication of vibration.

The general opinion of engineers appears to be, that the cast iron arch is the best form for an iron bridge, when it can be selected without regard to expense or to the height above the river or road which is to be crossed. For low bridges, the bow-string girder is recommended. Lattice bridges appear to be of doubtful merit.

The latest mode of construction that has been introduced consists of boiler plates, riveted together as in iron ship building, and combined in various ways with cast iron. Hollow girders are thus formed, which are either made so large as to admit of the road and carriages passing through them, as in the Conway and Britannia bridges, or else these tube girders are made on a smaller scale, and employed in the same manner as the ordinary cast iron girders, to sustain transverse joists which carry the road. The first kind is applicable to enormous spans, those of the two bridges above mentioned being 400 and 462 feet respectively. The second kind are said to be cheaper and more elastic than other forms for spans that exceed 40 feet.

These methods appear to possess and to promise many advantages, but they are of such recent introduction that no experience has yet been acquired of their powers to resist the various actions of sudden changes of temperature, vibrations, and other causes of deterioration. We have thought it our duty to seek for information with respect to them, and we find engineers to be, for the most part, exceedingly favorable towards them, but, for the reasons above stated, we are unable to express any opinion upon them. At the same time, we desire to bear testimony to the patient care and scientific manner in which the forms and proportions of the great tubes of the Conway and Britannia bridges have been elaborated; and we must beg to refer to

the Minutes of Evidence for the details of the information which we have collected.

The investigation in which we have been concerned has made it evident that the novelty of the railway system has introduced a variety of new mechanical causes, the effects of which have not yet had time fully to develop themselves, on account of the extent and number of new railways, and the rapidity with which they were constructed—and in many cases scarcely giving breathing time to the engineers, by which to observe and profit by the experience of each successive new construction. Thus it has happened that some portions of mechanism and structure have been made too weak, or placed in unfavorable combinations; and hence some unavoidable, but most lamentable, and sometimes fatal, accidents have been occasioned. It also appears that there exists a great want of uniformity in practice in many most important matters relating to railway engineering, which shows how imperfect and deficient it yet is in leading principles.

But we have also observed throughout the present inquiry that the engineers have been already warned by experience of the necessity for increasing the strength of bridges employed in railways; and of watching more narrowly their construction, so as to render them as strong as possible. Accordingly we have found that the original structure of all those bridges which have shown the least signs of weakness, has been carefully altered and strengthened, so as to leave no apparent cause for apprehension; while in new bridges, better and stronger combinations are adopted.

And in conclusion, considering that the attention of engineers has been sufficiently awakened to the necessity of providing a superabundant strength in railway structures, and also considering the great importance of leaving the genius of scientific men unfettered for the development of a subject as yet so novel and so rapidly progressive as the construction of railways, we are of opinion that any legislative enactments with respect to the forms and proportions of the iron structures employed therein would be highly inexpedient.

We would, however, direct attention to the general conclusions we have arrived at from our own experiments, and from the information supplied to us, namely—

That it appears advisable for engineers, in contracting for castings, to stipulate for iron to bear a certain weight instead of endeavoring to procure a specified mixture.

That, to calculate the strength of a particular iron for large castings the bars used as a unit should be equal in thickness to the thickest part of the proposed casting.

That, as it has been shown that to resist the effects of reiterated flexure, iron should scarcely be allowed to suffer a deflexion equal to one-third of its ultimate deflexion, and since the deflexion produced by a given load is increased by the effects of percussion, it is advisable that the greatest load in railway bridges should, in no case, exceed one-sixth of the weight which would break the beam when laid on at rest in the centre.

That, as it has appeared that the effect of velocity communicated to a load is to increase the deflexion that it would produce if set at rest upon the bridge; also that the dynamical increase in bridges of less than 40 feet in length is of sufficient importance to demand attention, and may, even for lengths of 20 feet, become more than one-half of the statical deflexion at high velocities, but can be diminished by increasing the stiffness of the bridge; it is advisable that, for short bridges especially, the increased deflexion should be calculated from the greatest load and highest velocity to which the bridge may be liable; and that a weight which would statically produce the same deflexion should, in estimating the strength of the structure, be considered as the greatest load to which the bridge is subject.

Lastly, the power of a beam to resist impact varies with the mass of the beam, the striking body being the same, and by increasing the inertia of the beam without adding to its strength, the power to resist impact is, within certain limits, also increased. Hence it follows that weight is an important consideration in structures exposed to concussions.

Whilst, however, we lament that the limited means which have been placed at our disposal, and the great time required for such investigations, have compelled us to leave in an imperfect state, or even to neglect altogether, many interesting and important branches of experimental inquiry, we trust that the facts and opinions which we have been enabled to collect will serve to illustrate the action which takes place under varying circumstances in iron railway bridges, and enable the engineer and mechanic to apply the metal with more confidence than heretofore.

WROLTESLEY.
ROBERT WILLIS.
HENRY JAMES.
GEORGE RENNIE.
W. CUBITT.
EATON HODGKINSON.

DOUGLAS GALTON, Lieut. Royal Eng's.,
Secretary.

Whitehall, 26th July, 1849.

From the N. O. Bulletin.

The Dimensions and Population of Cuba.

As the "inevitable destiny" of this noble island is, sooner or later, annexation to the United States, any information in regard to it is desirable, and at this time particularly opportune. The dimensions of the island have been variously estimated by different geographers, at different periods. This variance is of little moment, and is undeserving of consideration at present, particularly as we have official estimates of a late date, sufficiently accurate for our purpose.

The last statistics published by the government (in 1847) give the main island 34,233 square geographical miles, or 45,530 square English miles; to the Island of Pines, 810 square geographical miles, or 1077 square English miles; and to the other islets and keys, 970 square geographical miles, or 1290 square English miles. Total of the Island of Cuba and its dependencies, 47,897 square English miles.

To De Bow's Review, from which we derive the above statistical information, we are indebted for some additional facts. The length of the island, in the shortest line, from east to west, 680 miles. In its narrowest part, the island is 26 miles broad. In its broadest part, it is 135 miles wide. At this particular time, it is desirable to know the relative position of Cuba and its distances from other points. From the southern part of Florida to the most northern part of Cuba, the distance is 113 miles. The distance from the extreme southwest point of Cuba to the nearest point of Yucatan, is 132 miles; the eastern point of Cuba is 49 miles from the nearest point of Hayti, and the nearest distance between Cuba and Jamaica is 87 miles.

In regard to the population, the statistical information is likewise defective, but not as much so now as formerly. The returns of the white class may be relied upon, for the government has ample means to insure the correctness of this portion of the census, and its registration system, as applied to the whites, is well organized. Not so with the class of slaves—the returns are doubtless incorrect, for the interest of the planters and their fears of taxation, tempt them to conceal the real number of their slaves. With the other class enumerated in the census, there is likewise incertitude, owing to the fact that many are in the habit of enrolling themselves as white, who had previously been classed as colored.

We take the following table from an article by Mr. J. C. Reynolds, in De Bow's Review; it is constructed from official and other estimates, and may be considered authentic:

	White.	Free col'd.	Slave.	Total.
1774.....	95,419	30,615	44,336	170,370
1792.....	133,559	54,152	84,590	272,301
1811 [est].	274,000	114,000	212,000	600,000
1817.....	238,796	114,057	199,145	551,998
1825 [est].	325,000	130,000	260,000	715,000
1827.....	311,051	106,494	286,942	704,487
1841.....	418,291	152,838	426,495	1,007,624
1846.....	425,767	149,226	323,759	898,752

It will thus be seen, that while the class of whites has slightly increased, [7536 in five years] the aggregate population of Cuba has decreased. This increase of white population has been in the coun-

try, the towns and villages; while in the larger cities it has decreased. In 1841 the white population of Havana, within and without the walls, excluding the garrison, inmates of the prisons and hospitals, and transient persons, was 60,784; in 1846 it had fallen to 53,044. The total population within the same boundaries—excluding the garrison, etc., as above—in 1841, was 135,740; in 1846, only 105,751. The suburbs contained 25,010 inhabitants in 1841, and in 1846 only 23,026. The entire population thus fell from 160,750 to 128,597, or twenty per cent. In Matanzas, during the same period of five years, the white population had fallen from 10,304 to 10,039, the free colored from 3041 to 2788, the slave from 5779 to 4159, and the total population from 19,124 to 16,986.

The fluctuations in the numbers of the free population are ascribable to the cause before stated, viz: the practice of indiscriminate enrollment in one case or the other—the colored or white.

The diminution in the number of slaves, the reviewer ascribes, in part to the almost entire cessation of the African slave trade, and to the partial returns made by the planters. Making due allowances for these concessions on the part of the planters, it is estimated that 343,752 would be about the correct figures for the slaves in Cuba in 1846.

Connected with this subject, we give a brief summary of commercial statistics:

AGRICULTURE AND OTHER PRODUCTIONS OF CUBA IN 1849.

Agriculture.

Garden fruit.....	\$14,839,050
Sugar.....	13,699,924
Esculent vegetables and fodder.....	6,097,080
Tobacco.....	5,042,829
Coffee.....	2,206,131
Indian corn.....	1,884,962
Charcoal.....	1,750,110
Cedar, mahogany and other woods....	1,711,193
Molasses.....	1,462,728
Other agricultural productions.....	3,278,175

Total value agricultural productions.....\$51,972,202

Dairy and Domestic Animals.

Beef.....	\$3,605,780
Pork.....	1,346,055
Eggs.....	1,166,880
Birds.....	1,074,216
Milk.....	326,040
Hides.....	180,289
Mutton.....	120,000

Total value of the dairy and domestic animals.....\$7,819,260

Agricultural productions.....\$51,972,202

Grand total.....\$59,791,462

Exports of Produce from Havana for 1849.

	Sugar. Boxes.	Coffee. Arrobas.	Molasses. Hhds.
1847.....	644,853	326,061	32,482
1848.....	680,989	118,262	27,515
1849.....	612,801	316,246	36,256

	Cigars. Lbs.	Tobacco. Lbs.
1847.....	1,982,267	1,936,829
1848.....	150,729	1,350,815
1849.....	111,572	1,158,265

Exports of Produce from Matanzas for 1849.

	Sugar. Boxes.	Coffee. Hhds.	Molasses. Hhds.
1847.....	361,913	101,557	51,975
1848.....	313,352	8,431	58,219
2849.....	237,547	55,648	61,117

Working Railways in Belgium by Government.

The official return of the State, which, in Belgium, construct and work the railways, has just been published, of the financial state of these undertakings up to 1st January, 1849. These returns show a sad falling off in the profits as interest on the capital expended; and notwithstanding the numerous advantages which have attended the formation of railways in Belgium, they have ever been a heavy burden on her treasury, and show a tendency at no distant day, to be a dead weight on her resources. In 1847 the gross receipts were 14,649,093*fr.*; work-

ing charges 9,318,860*l.*; leaving a profit of 5,030,133*l.*; giving an interest of 3*l.* 39*c.* per cent. on a capital of 160,181,878*l.*; while on the 1st of January, 1849, the gross receipts were 12,107,744*l.*, and the working charges 8,766,241*l.*: leaving a net profit of 3,341,502*l.*, or 2*l.* 8*c.* per cent. on a capital of 160,570,268*l.* This is a specimen of the result of working by government, in a country where, from its almost perfect level, with plenty of cheap coal and iron, railways only cost about £12,183 per mile. Our English lines, with heavy outlay, and extravagant management, have paid somewhat better than this.—*Mining Journal*.

Commerce of New Orleans.

We give below a table prepared by the Deputy Collector, showing the arrivals and clearances at the port of New Orleans for the six months ending on the 31st of March, with a statement of the arrivals and clearances of the corresponding 6 months of the previous year:

Entrances and Clearances for the port of New Orleans.

Entrances from October 1, 1848, to March 31, '49.		
No ves.	To what nation belonging.	Tonnage.
371	American from foreign ports	117,595.75
224	Foreign " "	146,618.28
833	America coastwise	254,654.67
1418		518,868.70
Entrances from October 1, 1849, to March 31, '50.		
356	American, from foreign ports	117,719.27
264	Foreign, " "	133,583.80
807	American, coastwise	276,143.49
1427		527,445.56
Clearances from October 1, 1848, to March 31, '49.		
355	American, to foreign ports	141,587.00
177	Foreign, " "	124,090.00
1030	American, coastwise	284,389.27
1571		550,066.27
Clearances from October 1, 1849, to March 31, '50.		
268	American, to foreign ports	117,637.07
183	Foreign, " "	71,248.73
649	American, coastwise	286,361.01
1390		475,246.81

Of these, the trade to California direct and to Chagres shows the following comparative results, furnished us by the same authority :

*Statement of the Clearances for California and
Chagres.*

From October 1, 1848, to March 31, 1849.

Chagres		California	
No.	Tonnage.	No.	Tonnage.
Schooners..5	660.05	5	741.56
Steamers..6	3,400.67	1	326.77
Barks.....1	199.88	2	472.74
Brigs.....4	652.08		
16	4,912.68	8	1,541.07
From October 1, 1849, to March 31, 1850.			
Schooners.12	1,234.17	5	426.72
Steamers.13	10,150.39	1	136.53
Barks....1	199.88	11	2,717.11
Brigs.....15	2,576.58	6	1,079.88
Ships....5		7	3,119.51
45	14,161.02	30	7,479.75

These tables show an increase of entrances this year, amounting to 8,587 tons; and a decrease of clearances to the amount of 74,821 tons.

The increase of Clearances to Chagres and California is 18,087 tons, leaving a deficiency for all other ports of 80,908 tons, nearly equivalent to 200 ships at 450 tons each.

By reference to the Prices Current it will be seen that the exports of cotton up to date this year has fallen off from last year's 227,953 bales, which is equivalent to an amount of tonnage about equal to the gross falling off of clearances [74,821] already expressed.

The number of vessels now in port and disengaged was stated on Thursday morning to be 143, their tonnage 68,608, capable of carrying 236,022 bales of cotton.

The stock of cotton on hand at the same day amounted to 170,092 bales.

Alabama.

Alabama and Tennessee Railroad.

We have received from Lewis Troost, Esq., Chief Engineer of the above railroad, a pamphlet containing a copy of a letter by him to the President of the above road, illustrated by a map, giving the results of a reconnaissance of the proposed route, together with various statistics, showing the resources of the country penetrated by it, together with estimates of business which the road will command, not only from the country along its line, but also from its connection with other lines of intercommunication.

In relation to the route we quote as follows:

"The proposed route of the Alabama and Tennessee river railroad, is as follows: commencing at Selma, the route passes through portions of the counties of Dallas, Perry and Bibb, to Montevallo, in Shelby county; thence it diverges north-eastwardly through Shelby and Talladega counties, to Talladega town; thence it continues through the counties of Talladega and Benton to Gadsden, in Cherokee county. Here it is proposed to connect with the Tennessee and Coosa railroad, chartered to extend from Gadsden to Gunter's Landing, on the Tennessee river.

About 26 miles of the line, commencing at Selma, and running through the valley of Beach creek, thence across the dividing ridge between Beach and Mulberry creeks, into Mulberry creek valley, were graded in 1837, and will require but little additional work to place them in condition to receive the superstructure. From the termination of the graded part of the line on to Montevallo, Talladega and Gadsden, the country presents several practicable lines through a series of well directed valleys, affording excellent routes for your railroad. At this date, we have traced two lines through from Selma to Gadsden, and I have the pleasure of informing you, that we will be able to make a *cheap and effective* railway, *with a maximum grade of 40 feet to the mile*, ascending south, the direction in which the greatest amount of freight is to be transported.

From Gadsden to Gunter's Landing, a survey for a railroad was made in 1846, by Spencer Brown, Esq., Civil Engineer. The results of this survey are known.*

The valleys intervening between the mountain ranges of North Alabama, offer several very practicable routes for connecting your railroad with the Georgia and South Carolina railroads, and with the Middle, East Tennessee, and Virginia railroads. The two most obvious connections are,

1st. By Jacksonville to Rome in Georgia, the western terminus of the Georgia railroads.

2d. From a point near Gadsden, up the valley of Wills creek to Chattanooga, at the junction of the Georgia railroads, with the Nashville and Chattanooga railroad.

Both these connections are easy of construction, and their relative merits can only be ascertained by a thorough examination of the different routes, and a proper consideration of the relative advantages to be derived by your railroad and by the country interested in it. One or the other, or both of these connections must inevitably follow the construction of your railroad, thus completing the union of the Gulf of Mexico with the great railway improvements of Georgia, South Carolina and Tennessee."

The distance from Selma to the principal points on the line of the road are as follows:

* The Tennessee and Coosa railroad company will be organized shortly, and by virtue of an act passed at the last session of the Legislature, it will be incorporated with the Alabama and Tennessee river railroad. Thus the entire route from the Alabama to the Tennessee river, will be under one company and under one direction.

Selma to Montevello.....	57 miles
" Coosa river.....	85 "
" Gadsden....	160 "
" Gunter's Landing....	200 "

From Galena to Gunter's Landing the route is not as favorable as it is below the former place, though the obstacles are not of a very formidable character. The maximum grade over this portion of the line is 80 feet to the mile.

It is well known that this road will traverse one of the richest sections of the country in natural resources. It traverses the coal, iron and limestone districts of the State. A country, the geological characteristics of which indicate it to be the deposit of the most valuable of the minerals, in addition to those above named. In relation to the coal fields of Alabama we copy the following:

The carboniferous and sillurian beds in Alaba-
ma are exceedingly rich in their useful rocks and
metals.

There are four extensive coal fields in Alabama in striking distance of your railroad. They may be designated as follows: The "Tuscaloosa coal field," which is the greatest in area, lies in the valleys of the Warrior and its tributaries. The "Cahawba coal field," the southern boundary of which is at Centerville and Montevallo, occupies the valley of the Cahawba and its tributaries. The "Coosa coal field" is on the west side of the Coosa river in the vicinity of Broken Arrow creek—and the fourth coal field is in DeKalb and Marshall counties, between the Tennessee and the Coosa rivers. The coal strata on the Warrior and its tributaries, 10 of which have been discovered, are from 10 to 48 inches thick, and are slightly inclined towards the valley of the river; those on the Cahawba, are from 2 to 8 feet thick and are highly inclined, while those on Broken Arrow creek, and in DeKalb and Marshall counties, are said to be from 4 to 10 feet thick.

The coal, all of which is bituminous, of the three first mentioned fields, has proved to be of an excellent quality, having been tested in steamships, gas works, foundries, factories, &c., and from the examinations which have been made there can be no doubt of its abundance.

Each and all of these coal fields are convenient and accessible to your railroad, particularly those on the Cahawba river, and Broken Arrow creek, and in DeKalb and Marshall counties. The coal measures of the Cahawba will be in from 60 to 75 miles; of the broken Arrow of from 120 to 130 miles; and of DeKalb and Marshall counties of from 170 to 195 miles of Selma by your railroad. with branch lines of from 5 to 15 miles long. The Warrior beds may be reached by a branch of 30 to 40 miles long, making their total distance to Selma from 80 to 90 miles.

In close proximity to the coal measures are inexhaustible and extensive beds of iron ore of the finest quality. In fact the counties of Bibb, Shelby, Talladega, Benton, Cherokee, St. Clair, Jefferson and Tuskalooza, abound in deposits of iron ore, not excelled in richness and extent. The ore has been tested and yields an excellent quality of iron. Notwithstanding the difficulties experienced for the want of suitable means of transportation to market [the cost of transportation to a navigable river being from \$9 to \$12 per ton] the ore is manufactured into iron in several localities with profit.

Another highly important material, which abounds in localities convenient to your railroad, throughout the carboniferous and sillurian rocks is the limestone. Some of the limestone of these beds furnish marble of excellent quality, and of beautifully variegated colors. Several varieties of blue and gray marble occur in Shelby county; in Talladega county a jet black marble; in Cherokee a buff colored marble; and in Benton county a dove colored marble, have been found. These varieties of marble take a very fine polish, dress well, and will become very useful for building and ornamental purposes. A large portion of this limestone when burned, yields quick lime, equal in strength and whiteness to the Thomaston lime.

Large beds of gypsum have likewise been found.

This article so useful in agriculture, will also swell the freight. There are other productions of these formations deserving notice, such as hydraulic limestone, mill stones, whet stones, flag stones, lead and manganese.

In the metamorphic rocks in Talladega and Coosa counties, we find a beautiful and highly valuable white marble, and granite well adapted for building. The marble quarries of Dr. Gantt, situated in the southern part of Talladega county, convenient to the projected route of your road, are particularly worthy of being mentioned on account of the pure white saccharine marble which they yield in masses of great size.

A large quantity of iron is already produced in this portion of Alabama. The great cost of transportation at the present time, is a serious check upon this business.

The coal fields of Alabama must supply the Gulf of Mexico, which is soon to become the seat of a commerce vastly greater than what it now enjoys. Our recent acquisitions on the Gulf and on the Pacific will bring into that great inland sea the commerce of every part of the world.

The agricultural capacities of Alabama are well known. On reaching the Tennessee river, the road will find an important feeder in that great stream, and when it shall connect with the roads of North Alabama, Tennessee and Georgia, it will then give to Mobile the trade of all that portion of the country to which she can lay any claim. The following are the estimates of the business of the road for one year:

WAY BUSINESS.

Down Freight.

48,000 bales of cotton as follows:	
From Benton county.....	10,000
Talladega ".....	12,000
Cherokee ".....	6,000
St. Clair and Jefferson counties..	2,000
Shelby county.....	8,000
Bibb ".....	6,000
Perry, Autauga, & Dallas.....	4,000

48,000 at 80 cts per bale.....	\$38,400
20,000 bbls. of flour, at 25 cts.....	5,000
60,000 tons of coal, at \$1 50 per ton.....	90,000
10,000 tons of iron, at 3 ".....	30,000
5,000 tons of marble, 3 ".....	15,000
50,000 bbls. of lime at 25 cts.....	12,500
20,000 hogs at 75 cts each.....	15,000
3,000 cattle at \$2 each.....	6,000
5,000 horses and mules at \$3 each.....	15,000
2,000 tierces of bacon and hams at \$1 50.....	3,000
60,000 bushels of corn and other grain at 10 cts.....	6,000
10,000 bbls. of pork, beef, and whiskey at 30 cts.....	3,000
Bagging and rope.....	3,000
6,000 tons of lumber at \$2.....	12,000
5,000 cords of wood at \$1.....	5,000
7,000 tons of building stone, mill stones, Gypsum, brick, &c. at \$2.....	14,000
Miscellaneous freight, tar, turpentine, wool, manufactured goods, &c.....	6,000

Down way freight.....\$278,900

Up Way Freight

20,000 bbls. of sugar at 50 cents.....	10,000
15,000 sacks of coffee at 50 cts.....	7,500
3,000 sacks of salt at 50 cents.....	1,500
3,000 bbls of Molasses at 60 cts.....	1,800
Miscellaneous groceries.....	10,000
Light merchandise, foreign imports, &c..	15,000

Up way freight.....\$45,800

Way passengers 37,500 each way averaging \$2.....150,000

Total way business.....\$474,700

THROUGH BUSINESS.

Down Freight.

30,000 bales of cotton, from North Alabama and Tennessee, including the counties of Limestone, Marion, Jackson, Morgan, Marshall, DeKalb, and Blount, in Alabama, at \$1 25.....	\$62,500
7,000 bbls of flour at 50 cts.....	35,000
1,000 tons of iron at \$5.....	20,000
50,000 hogs at \$1.....	50,000
3,000 cattle at \$3.....	18,000
5,000 horses and mules at \$4 50.....	27,000
12,000 bbls. of Pork, beef, and whiskey at 60 cts.....	7,200
5,000 casks of bacon and hams at \$2.....	10,000
30,000 kegs of lard at 20 cts.....	6,000
200,000 bushels of corn and other grain at 10 cts.....	20,000

Down Freight.....\$255,700

Up Through Freight.

30,000 bbls of sugar at 60 cts.....	\$18,000
30,000 sacks of coffee at 60 cts.....	18,000
5,000 bbls of Molasses at 70 cts.....	3,500
Miscellaneous groceries.....	13,500
Light merchandise, foreign imports, &c.....	20,000

Up through freight.....	\$73,000
Through passengers 15,000 each way, at \$6.....	180,000

Total through business.....	\$508,700
Transportation of the United States Mail.....	38,000

Gross receipts.....	\$1,021,400
Deduct expenses, 43 per cent.....	439,202

Net income per annum.....\$582,198

Equivalent to an interest of 14-55 per cent on the cost of the road at \$20,000 per mile; of 17-12 per cent on the cost of the road at \$17,000 per mile; of 19-40 per cent on a cost of \$15,000 per mile; of 24-25 per cent on a cost of \$12,000 per mile; and of 29-10 per cent on the cost of the road at \$10,000 per mile, which last is \$763 per mile more than Col. Dexter's estimate in 1837, of the average cost per mile of the road, exclusive of machinery, by the Cahawba valley route.

New Hampshire.

Northern Railroad.—The annual meeting of this corporation was held at Concord last Wednesday. George W. Nesmith, Timothy Kendrick, Joseph B. Walker, J. B. French, Wm. J. Walker, John Brewer and George A. Kettell were elected directors for the ensuing year.

Concord and Claremont Railroad.—We have received the second annual report of the above railroad corporation. The road is expected to be finished to Bradford, nearly 27 miles from Concord, next month, which has been accomplished in a little more than a year and a half, notwithstanding the difficulties of the time. The whole amount of stock issued and contracted for is \$260,000; the total cost of the road has been \$398,075, and it is recommended that the capital stock be limited to 400,000, which will finish and equip the road to Bradford. The debt of the company will consequently be nearly \$140,000, which may be reduced to 100,000 by the sale of property and collection of dues. The stockholders are reminded of the necessity of providing for this debt, either by subscribing and paying for sufficient stock to make up the deficiency, by issuing preferred stock, or by issuing mortgage bonds, to the extinguishment of which all income of the road should be appropriated. The directors speak well of the prospects of the road, and

state that the net income from the running of the road eight months to Contoocookville, and seven to Warner, is \$12,035—more than six per cent. on what will be the cost of the road to Warner.—*Boston Courier.*

Ashuelot Railroad.—This corporation held their annual meeting at Winchester, N. H., on 14th ult. The engineer reported the grading of the entire line far advanced, that the road would be opened from Keene to West Winchester, 15 miles, in August—and the whole road from South Vernon to Keene may be finished as soon as the bridge over the Connecticut can be completed, probably in November. Messrs. Benjamin F. Adams and John H. Fuller of Keene, John Stratton of Swanzey, A. Hammond of Winchester, Wm. Haile of Hinsdale, Cephas Root of Greenfield, and Philip Ripley of Hartford, were elected the board of directors for the coming year.

Cheshire Railroad.—The fifth annual report of the Cheshire railroad company gives the annexed exhibit of the operations and affairs of the road up to and on the 1st of May, 1850:

Capital Stock.

The whole number of shares issued, on which assessments have been paid in full is.....	16,195
The number issued in payment of dividend Jan. 1, 1850.....	181
Number on which nothing, or part only, is paid, and which have been created and not disposed of.....	624

Of these 11,009 shares paid in full, have been issued at \$100 per share, and 5,367 shares at \$75.

The total amount received on the above is.....	\$1,510,344 50
Amount still due.....	29,005 50

Construction Account.

The amount received into the treasury to May 1st, exclusive of earnings, was—	
From stock.....	\$1,510,344 50
From bonds.....	630,700 00
From bills payable.....	534,632 88

\$2,675,677 38

The disbursements for the same work were—	
For construction of the road, masonry, grading, superstructure, land damages, etc., road furniture, salaries, and incidental expenses.....	\$2,345,714 28
Interest, dividends, bond warrants and loss on bonds.....	257,698 17
Fuel, transportation of merchandise, repairs, etc. prior to May 1, 1849..	29,045 07
Advances made to contractors.....	30,000 00

\$2,662,457 53

The length of the road is 54 miles, maximum grade 59 feet, and shortest radius of curvature 955 feet. The whole number of passengers carried over the road during the year was 99,510; whole number carried one mile 2,262,192.

Income.

From passengers during the year ending April 30th, 1850.....	\$79,357 38
Freight.....	91,138 03
Mails, express, etc.....	8,295 22

\$178,790 63

Total expenditures for operating road.....73,844 43

Balance.....\$104,946 20

There have been paid during the year—

For interest on loans.....	\$40,617 82
" bonds.....	22,818 50
For dividend, Jan. 1, 1850, in stock....	40,462 00

\$103,898 32

The comparative receipts for the four months in 1849 and 1850 were as follows—

	1849.	1850.	Increase.
January.....	8,582 84	12,774 45	4,191 61
February.....	9,193 72	12,374 37	3,180 65
March.....	10,881 74	14,071 53	3,189 79
April.....	11,407 49	14,672 53	3,265 04

\$40,065 79 \$53,892 88 \$13,827 09

The report proceeds to give a detailed account of the persons employed and the salaries paid to each, together with a statement of the property of the company, all of which we omit as being of minor interest.

Indebtedness and Available Means.

The company owe in bonds.....	\$630,700 00
In bills payable.....	534,632 88
In cash payable at sight, and dividends uncalled for.....	9,955 30

\$1,175,288 18

The means of the company in cash, notes, stock, rails, amounts due from other roads, real estate, etc., amount to.....	126,264 56
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Balance\$1,049,023 62

In the aggregate the total amount of capital invested in the road is given as \$2,693,543 12.

Boston, Concord and Montreal Railroad.—A large meeting of the stockholders of this road was held at Meredith Bridge on Wednesday last. The Gazette of that place states that "there seemed to be but one opinion in regard to the extension of the road to Wells river, and that was, it must be done whenever new stock could be disposed of for that purpose, or money obtained on sufficient length of time and at a fair rate of interest. It was also thought that expenses might be considerably reduced, and that the earnings of the road should be divided among the stockholders." The following ticket for board of directors was agreed upon to be supported at the annual meeting to be held at Plymouth on the 28th: Josiah Quincy of Rumney, Ira Goodall of Bath, James M. Whiton and Peter Clark of Boston, Dr. Farley of Manchester, John Eastman of Concord, Woodbury Melcher of Guilford was also nominated but declined. Messrs. Clement, Lyford and J. L. Clark, of the present board declined serving another year.

Massachusetts.

Boston and Worcester Railroad.—The annual reports of the Boston and Worcester railroad Co. show that from 1842 to 1849, the length of the road and branches increased from 45 miles to 60 miles, and the cost from \$2,764,396, to \$4,908,332. The receipts, in the meanwhile, increased in the same ratio. The comparative growth of the passenger and freight expenses and receipts will be seen by the annexed table:

Year.	RECEIPTS.			Total.
	Passen- gers.	Freight.	Mails, rents, &c.,	
1842....	\$186,610	\$148,188	\$14,408	\$349,206
1843....	207,267	162,656	13,444	383,367
1844....	234,633	175,996	10,783	426,413
1845....	241,219	233,535	12,732	487,486
1846....	279,793	960,165	14,754	554,712
1847....	304,580	374,663	42,927	722,170
1848....	332,886	859,073	24,325	716,284
1849....	330,606	331,338	41,417	703,361

Year.	EXPENSES.		Net in- come per ct. cost.
	Expenses & repairs.	Net in- come.	
1842....	\$178,510	\$170,696	6.20
1843....	190,549	192,818	6.80
1844....	231,249	195,464	6.73
1845....	243,729	237,727	7.40
1846....	286,876	267,836	7.68
1847....	351,986	340,184	8.27
1848....	381,918	334,366	7.88
1849....	405,551	297,810	6.07

The number of miles run has increased from 341,319, to 460,983. The number of passengers from 470,319, in 1846, to 959,537 in 1849; the tons of freight from 179,325 to 248,768.

Finances of Maine.

The report of the State Treasurer of Maine exhibits the operations of the Treasury for the year, and its present fiscal condition, as follows:

Amount of receipts from May 1, 1849, to April 30, 1850, inclusive.....	\$525,688 26
Balance of cash in the Treasury, May 1, 1850.....	70,638 26

Total.....	\$604,726 52
Amount of expenditures from May 1, 1849, to April 30, 1850, inclusive.....	\$478,802 40
Leaving a balance in the Treasury April 30, 1850, of.....	125,924 07

Total.....\$604,726 52
The liabilities of the State are \$1,032,962, of which \$854,750 is funded debt. The resources of the State are \$819,267.

U. S. Mint.

The following table shows the amount of California gold received at the Mint up to the given dates:

Total receipts up to May 1, 1850, at the Philadelphia & New Orleans Mints.....	\$13,875,452
Receipts at the Philadelphia Mint from May 1 to May 14, 1850.....	1,550,000

Total.....	\$15,425,452
Estimated receipts at the New Orleans Mint.....	250,000

Grand total.....\$15,675,452
It would appear by the amount received in May at the Mint, that the quantity of gold reported as received by the last three steamers was exaggerated.

North Alabama and Savannah.

We had yesterday the pleasure of conversing with Mr. Patterson, a merchant of Decatur, North Alabama. Mr. P. is almost the pioneer of business relations between this place and that region. He brings for himself and friends nearly 500 bales of cotton to this market, taking back supplies. This cotton was received at Decatur, (which town is 200 miles below Chattanooga, just above the "Muscle Shoals,") principally from the counties of Morgan and Lawrence. A small part of it came from Elk river. Heretofore this cotton went to Florence, below the Muscle Shoals, and thence to New Orleans. Now, since the State road is opened to Chattanooga, the tide is turned the other way, and the trade of Decatur is increased two fold beyond the last season. Of the 200,000 bales made in N. Alabama, Mr. Patterson estimates that one half will henceforth come to the Atlantic markets.

From Decatur to Knoxville is 400 miles of navigation. Nine steamboats are now engaged between these two points, and three new ones are being made at Pittsburg. One boat, the James Jackson, of the capacity of 1,000 bales of cotton, 185 feet long, passes through "the suck" and other obstructions between Decatur and Chattanooga without the aid of tow lines. They go from Memphis to Washington City, via Decatur, in seven days. When the Memphis road is done, the time will be reduced to five days.

We might have added to those details, that since the opening of the Tunnel on the State road, the travel has received a sudden and remarkable impulse. The revelations already made both with reference to trade and travel, show that our great

State work is going to have enough to do; and that, as we have always insisted, it will pay a large profit to the State. A friend of ours, just from Chattanooga, states that the shores there were lined with cotton. He estimates that there were 1,500 bales on hand there a few days since, and he conversed with two planters on their way to Savannah with their crops. The stores at Chattanooga, he adds, were full to repletion with Tennessee flour, corn and bacon, awaiting transportation; and among other articles he counted one hundred boxes of window glass, made in Tennessee, and destined for Georgia markets. While he was there, boats were arriving daily from Knoxville and Decatur, and bringing on an average twenty passengers each. Forty passengers left Chattanooga to come down in the same train with him.—*Savannah Republican.*

STEAM ABOVE THE FALLS.

The new steamer intended for the trade above the Falls of St. Anthony, is rapidly progressing. The keel is now being laid, and she will be launched as soon as the river is clear of ice. The master ship carpenter, having charge of her construction, arrived at the Falls last week, and entered upon the discharge of his duties. He hails from Bangor, Me., and is said to be a highly skilful workman.

The dimensions of the craft are 108 feet keel, 150 feet deck, 25 feet beam, and will draw 12 inches light. The machinery is in course of construction at Bangor, and will be here by the opening of navigation.—*Minnesota Chronicle.*

We know of nothing calculated to give a better idea of the magnitude of this country and of the ease with which the most distant parts communicate with each other, than the fact stated above.—Maine and Minnesota occupy the extremes of the Union, and by way of the Mississippi river are distant about 5000 miles, yet the machinery for the first steamer we believe ever built above St. Anthony's Falls is manufactured in Bangor, in the former State.

Rhode Island.

Providence and Worcester Railroad.—The fifth yearly meeting of the stockholders of this road was held at Providence on Monday, the 20th ult., to receive the report of the directors; by which it appears that the construction and equipment account up to the 1st of May, 1850, amounted to \$1,954,390 14, the capital stock \$1,457,500, bonds \$424,000. The balance outstanding against the company on the 1st of May was \$36,799 19, which is now due by the corporation in bills payable. The meeting resolved that the construction account shall be closed on it reaching the sum of \$2,000,000; that the directors be empowered to apply to the State for leave to issue bonds of the company, payable in five years or less, for \$500,000 at 7 per cent. to be secured on mortgage; and that a committee of seven stockholders, not being directors, be appointed to investigate and report on the cause of the original estimate of \$1,000,000 for the construction of the road having been exceeded. The committee was appointed to consist of Messrs. C. Robinson, Wm. Sheldon, D. Hill, Isaac Davis, L. P. Child and G. L. Dwight, who are to report to an adjourned meeting. The President, Orray Taft, Esq., was re-elected.

Value of American Gold in London.—American gold in England is equal to sterling exchange at 11½ per cent., 10,000 eagles, costing in New York on ship board \$100,510, 50 are worth in London £20,352 15s. 7d., which amount drawn at 60 days to produce the \$100,510 50, equals an exchange of

11). The Dry Goods Reporter has all the details of the calculation. Mexican dollars in London are about equal to exchange at 9½, and in Paris to exchange at 5 2¼, at the present prices of silver here and abroad, Mexicans in London are equal to about 10 per cent. The Reporter truly says—

"There is already a difference of 1½ per cent. between shipments of dollars and shipments of gold, for which there is no demand abroad. This state of affairs points to considerable inconvenience. It is true that the immigrants bring in considerable amounts of five franc pieces, and Mexican dollars flow hither from the South, but as far as this demand for silver depends upon or grows out of the increased abundance of gold, it indicates a growing evil, which must require in our currency, when both metals are a legal tender, a readjustment of the relative values."

AMERICAN RAILROAD JOURNAL.

Saturday, June 1, 1850.

Wisconsin.

Her Progress and Resources.

We gave a short time since a brief account of the operation of the Milwaukee and Mississippi railroad company, which is now engaged in the construction of a road from Milwaukee, following a generally western direction, to the Mississippi river. As few who have not visited that thriving State have but little idea of the progress it has made both in population and wealth, or of the vast elements of commercial, agricultural, and mineral greatness which she possesses, we think that a brief account of her progress and resources cannot but be acceptable to our readers.

The portion of Wisconsin now occupied, embraces about 9,900, say 10,000 square miles. It lies mostly south of the Wisconsin and Fox rivers. Other portions of the State are fertile, but the above is the only part of it that has received much attention from the Eastern emigrant.

By the census of 1840, Wisconsin had 30,000 inhabitants. We omit the fraction. By the State census of 1847 she had 213,000, making an increase of 183,000, equal to an annual increase of over 26 000 per year. The ratio of increase has been about 33½ per cent. as follows:

In 1840, she had.....	30,000 inhabitants.
In 1841, 33 per cent. increase	
would give her.....	40,000
In 1842, " " " " " "	53,333
In 1843, " " " " " "	71,110
In 1844, " " " " " "	94,813
In 1845, " " " " " "	126,417
In 1846, " " " " " "	168,556
In 1847, " " " " " "	224,741

The same ratio would give the present population at 504,000, as follows:

In 1847, she had.....	213,000 inhabitants.
In 1848, the above ratio would	
give.....	284,000
In 1849, " " " " " "	378,666
In 1850, " " " " " "	504,000

There is no probability that she has continued to increase in this ratio, but as she increased at the rate of 33 per cent. up to 1847, there can be no doubt but that for the past three years her annual increase has been equal to what, by the above ratio she must have increased in 1847, that is 56,185.—This would make her present population 381,555. No one can doubt that her actual increase has been greater since 1847 than it was in that year, though the per centage is much less.

By the above calculation the increase of Wisconsin in ten years has been 353,555. She presents the most remarkable instance of rapid growth of any Western State. The following table shows the

growth of some of the Western States since 1800.

	1800.	1810.	1820.	1830.	1840.
Ohio.....	45,363	230,760	581,434	937,903	1,379,467
Indiana..	4,875	24,520	147,178	343,031	685,866
Illinois..	12,282	55,211	157,455	476,183	
Michigan	4,762	8,896	31,639	212,167	
Missouri	20,845	66,586	140,445	383,702	

Ohio is always pointed to as showing the most rapid progress of any of the Western States. Yet neither in the ratio nor in the absolute amount of her increase can she bear comparison with Wisconsin. It will be borne in mind that Ohio contains 40,000 square miles, and that nearly every part of that State filled up pretty uniformly, while in Wisconsin the whole population thus far have confined themselves to a territory equal only to one quarter of the area of Ohio.

From 1800 to 1810 Ohio increased at the rate of about 18 per cent., with an absolute increase of 185,397; while Wisconsin, occupying in 1840 about the same position in regard to settlement as Ohio in 1800, has increased at the rate of nearly 30 per cent., with an absolute increase of 351,551 in ten years, against 185,397 of Ohio, making the ratio as 30 to 19 in favor of Wisconsin, and the actual increase nearly double. These facts show how immensely Wisconsin has outstripped all her older sisters in the great race of progress, which has rendered them the marvel of the world.

As we stated above, the present inhabitants of Wisconsin occupy at most only about 10,000 square miles. If we have correctly estimated her population, the part settled has an average of 38 inhabitants to the square mile. In 1840 the population of Ohio averaged 38 to the square mile. Vermont averaged 36, and New Hampshire 35 to the square mile. The dense filling up of Wisconsin in so short a time with population which, with the exception of Milwaukee, is almost entirely composed of farmers, show the extraordinary fertility of its soil, attractiveness of climate, and capacity for future growth.

The increase of the population of this State, great as it is, is much exceeded by the more rapid increase of her products and her commerce. Wisconsin did not begin to export produce to any amount until 1845. Below we give a table of the exports of wheat from the city of Milwaukee for a period of five years commencing at that time. We copy from a report upon the business of that city, made to the Board of Trade by Alex. Mitchell and E. D. Holton, Esqrs.

1845.....	133,310 bushels.
1846.....	292,228
1847.....	662,211
1848.....	1,076,134
1849.....	2,208,517

This increase is at a rate of more than 100 per cent. per annum. We are not informed as to the relative amount of exports of Milwaukee compared with other parts of that State, nor of the whole amount of exports. Racine, Southport, and many other places export a large quantity of wheat; and we know no reason why they have not enjoyed the same rapid relative growth as Milwaukee. The annual growth of Milwaukee since 1840 has been as follows:

1840.....	1700
1842.....	2700
1846, June 1.....	9655
1847, Dec. 15.....	15,071
1849, August.....	18,000

The above exhibits a rapidity of growth without a parallel in the history of this country. The following table shows the value of articles manufactured in Milwaukee in 1849:

Description of Articles Manufactured.

Woolen goods—various kinds.....	\$40,000
Edge tools.....	30,000
Foundries, various kinds of machinery.....	195,000
Carriages and wagons.....	115,500
Sash, blinds and doors.....	49,700
Leather.....	120,000
Wooden ware and wood turning.....	87,750
Lumber.....	20,000
Cabinet ware.....	127,700
Boots and shoes.....	95,250
Tin, sheet iron and copper ware.....	114,600
Saddles and harness.....	44,000
Soap and candles.....	37,000
Burr mill stones.....	36,000
Boilers—steam.....	20,250
Sail and rigging.....	17,500
Ploughs.....	4,500
Clothing.....	97,000
Saleratus and pot ashes.....	15,000
Lumber planed and matched by mach.....	24,000
Fanning mills and thrashing machines.....	25,700
Paper.....	40,000
Copper and iron smithing.....	27,550
Earthenware.....	7,500
Brass machinery and turnings.....	10,000
Tobacco and segars.....	15,500
Malt liquors.....	71,000
Bread and crackers.....	27,700
Gun and lock smithing.....	9,500
Book binding.....	8,000
Coopers' ware.....	8,500
Brick—ten millions.....	40,000
Shingles.....	25,500
Miscellaneous—such as jewellers, gilders, weavers, pump makers, dyers, tool manufacturers, etc.....	107,000

\$1,714,200

In addition to the above there are five flouring mills, propelled by water power, and one by steam, containing 17 run of stone, each run capable of turning out 80 to 100 barrels of flour per day, and consuming in all 7000 bushels of wheat daily.

Imports.

	Value.
Tons merchandise, 16,012.....	\$3,202,400
Barrels of salt, 35,000.....	43,750
Bbls. bulk furniture, 17,500.....	140,000
Coal, water, lime and plaster.....	18,000
Fruit—dried and green.....	11,500
Lumber, lath, shingle bolts, shingles and timber.....	375,000
Miscellaneous.....	38,000

\$3,828,650

Exports.

Bushels wheat, 1,148,807.....	\$1,004,642 79
Barrels flour, 201,942.....	945,088 50
Do. pork and beef, 5,527.....	44,216 00
Tons lead and shot, 810.....	53,000 00
Hides, 10,281.....	23,132 00
Sundry manufactured articles.....	28,390 00

\$2,098,469 36

Vessels Owned in Milwaukee.

There are thirty nine sail vessels owned in, and sailing out of this port, of which the total tonnage is 5,542—also stock in steamboats and propellers of 3000 tons, making the total tonnage owned in the port 8,542.

Sixteen sail of vessels are engaged exclusively in the lumber trade, and the remainder in freight-producing produce and merchandise.

Arrivals during the Season of 1848.

Steamboats.....	498
Propellers.....	248
Barques and brigs.....	119
Schooners.....	511

1176

The above State, with all its population, cities, commerce, shipping, etc., etc., is the growth of ten years! With the progress now made, and with all the means now at command, what will not the next ten years accomplish? In 1860 she will become

one of the leading States in the Union in every respect.

Wisconsin possesses great commercial facilities. Her western boundary is washed by the Mississippi river, and her eastern by Lake Michigan; while her interior is penetrated by the Wisconsin and Fox rivers, which with some improvement can be made navigable to a very considerable extent.—The two rivers are now being connected by a canal, so that steamboats can pass from one to another—thus forming a direct line of steamboat communication between the lakes and the Mississippi. The length of this canal is to be only about two miles.

But the great want felt in Wisconsin are good roads; in other words, of *railroads*. The soil of that State, like that of all of the Western States, is poorly adapted to the formation of a good road bed. McAdamized roads are very expensive from the absence of suitable rock formations, while railroads can be built at the lowest cost, from the level nature of the country, and the abundance of all the necessary material but iron. A good railroad penetrating any section of it, would at once double its exportable products. And if railroads in N. York and New England, costing \$50,000 per mile, pay a fair income upon their cost, what would a Wisconsin road pay which would not cost a quarter as much, and at the same time, running through a country of vastly greater resources. In addition to the superiority of Wisconsin in these respects, it must be borne in mind that the pursuits of her people at present are entirely agricultural; and that consequently they must export over their roads all their surplus, and import over them all they consume, that their own farms do not produce.

The New York end of the Troy and Greenfield railroad, from Troy to Pownal, Vt., a distance of thirty six miles, has been put under contract, for \$720,000, to be paid \$400,000 in cash, \$200,000 in stock, and \$120,000 in bonds. This contract includes land damages, and everything but the furniture of the road. The latter is estimated at \$130,000, making the entire cost of the road in running order, \$850,000. The road is to be finished by the first of July, 1851. Measures will be taken, we presume, to complete the road at the same time, as far as North Adams.

South Carolina.

Kings's Mountain Railroad Company.—The object of this company is to build a railroad from Yorkville in York district, to Chesterville, a distance of about 25 miles, there to connect with the Charlotte and South Carolina railroad. The company was organized on the 13th ult. by the choice of the following officers, viz:

President,

WILLIAM WRIGHT.

Directors.

John H. Adams,	W. C. Beatty,
S. E. Bratton,	John B. Hunter,
Wm. A. Latta,	John McGill,
John S. Moore,	John M. Ross,
C. P. Sandifer,	George Steele,
Wm. J. Wilson,	Samuel Wright.

York district lies upon the north line of the State far removed from the good navigable water courses, and a railroad will prove to it a great desideratum in opening a cheap communication with the seacoast and a market. The whole amount of subscriptions is now \$115,000, but the work will not, we understand, be commenced until a sufficient amount to complete it is secured.

We presume that, from the nature of the country, the road can be cheaply built, and that the sec-

tion interested in its construction is well able to complete it without aid from abroad. When completed it will form a valuable auxiliary to the roads below, and it will be very likely in time to find its way into North Carolina, and open an outlet to that secluded part of the State.

Blake's Patent Fire-Proof Paint.

It is now more than six years since this singular substance was discovered by the patentee, William Blake, Esq., since which time it has been used extensively throughout the United States in covering all descriptions of buildings, either brick or wood; and for roofs, either shingle or tin, there is nothing equal to it. So well does it protect everything covered with it from the action of fire and weather—time and the elements tending only to harden it—that in Akron, Ohio, where it is best known, and where its fire-proof qualities are appreciated, the insurance companies, as we have been informed, have given notice that they will insure buildings covered with it at a much less premium than those covered with tin or zinc, as it has been tried in several fires there and stood much longer than either. After it has been applied a few months it acquires the hardness of slate or stone—thus forming a complete "*coat of mail*." It will be found useful for railroad depots, bridges, steamboat and car decks, and for all kinds of iron, as it forms a coating nearly as hard as the iron itself, and never *cleaves off*. There is said to be an amount of worthless counterfeited stuff in the market, but as it does not answer the purpose intended, besides being an infringement of Mr. Blake's patent, we would advise all who wish to purchase to go directly to the General Depot, No. 84 Pearl St., New York, where all orders are received and promptly executed.

Commerce of New York.

The following is a comparative statement of the imports at this port, for the first quarter of the years designated:

	1848.	1849.	1850.
Dutiable.....	25,360,729	24,785,563	23,999,503
Free.....	3,318,492	2,817,728	4,387,328
Total.....	\$28,679,221	26,603,291	29,386,836
Duties received	6,214,484	5,991,816	6,996,656

Pennsylvania.

Lehigh Navigation Co.

The annual report of this company states that 801,246 tons of coal were shipped during the year, of which 379,285 tons were from the company's mines. The aggregate shipment exhibits an increase of 120,500 tons over the previous year. Of the above aggregate, 116,830 tons were disposed of on the line of the company's canal; 103,482 tons entered the Morris canal, and 580,934 tons went into the Delaware division. Of this last quantity, 105,000 tons passed into the feeder of the Delaware and Raritan canal, by the outlet lock near New Hope. From the company's Tamaqua mines, the yield for the year was 14,522 tons. The lumber shipped on the canal amounted to 33,868,816 feet, being an increase of 1,792,635 feet over the shipment for the year 1848. The company's business for the past year has proved much more productive than it did in the year 1848. The toll account for 1849 shows an improvement of \$44,407; the profits on coal exceed those of the year 1848 by \$59,998; and the profit and loss account for 1849 is better than that for 1848, by \$121,922. The indebtedness of the company on the 1st of January, 1850, was less by \$259,425 than it was on the 1st of Jan. 1849. The production of coal the present season the re-

port estimates at not less than 900,000 tons, and may considerably exceed this estimate.

Memphis and Charleston R. R. Co.

This company was organized on the 29th of April by the choice of the following gentlemen as directors, viz: James C. Jones, R. C. Rinkley and Daniel Looney of Tennessee; Judge Clayton of Mississippi; George P. Beirne and Robert Fearn of Madison county; Wm. A. Austin of Jackson co., R. M. Patton of Lauderdale co., and J. C. Goodloe of Franklin co., Alabama.

The report of the commissioners to receive subscriptions of stock was presented; from which it appeared that about \$1,200,000 had been subscribed, and upon the greater portion of which fifty cents per share, or two per cent. had been paid.

C. F. M. Garnett, Esq., now Chief Engineer of the Virginia and Tennessee Railroad, has been chosen Chief Engineer of the above work. We have not learned whether he has not accepted the office.

Gov. James C. Jones has been chosen President of the company. This position was assigned to him not only by the unanimous voice of the directors but of the whole community interested in the work, and is justly due to his eminent services in its behalf.

From the liberal means provided with which to commence the work, the wealth of the country to be traversed by it, and from the character of those interested in its direction, we confidently expect to see it energetically prosecuted and completed at an early day. It is a work of the first magnitude, of great importance to every part of the country, and its completion will form a new era in the progress of the South.

United States Railroad Guide for May, 1850.

We have frequently had occasion to examine this "guide," and find it to be very accurate—embracing all the roads in the country, and containing official tables, with hours of departure of trains, stations, miles, fares, time, etc., on all the railroad and principal steamboat lines in the United States; and other valuable matter for the travelling public. It is published in a neat and convenient form, and the number for May contains a map of the railroads in New England, and also of New York city. It is published monthly by Geo. R. Holbrook, and is for sale at 114 Nassau Street, New York.

Pennsylvania Railroad.

The subscriptions to the stock of this important work, have been increased during the last two weeks, two hundred and fifty thousand dollars. It only requires additional subscriptions to the amount of \$375,000 to complete the road between this city and Pittsburgh. This sum will no doubt be raised in a short time, as the earnings on the road, which will be completed next week to Huntingdon, a distance of 204 miles from this city is about five per cent on the total cost of construction. In all September next the road will be completed to Hollidaysburg, where it will connect with the Portage road, 36 miles, over the Allegheny mountains, leaving a distance of only 76 miles from Johnstown, the western termination of the road to Pittsburgh, to be completed. Of this distance 15 miles eastward from Pittsburgh is now partially completed.

Thus far the work has progressed with great rapidity and has been completed in the best and most substantial manner within the estimates of the Chief Engineer, J. E. Thomson. Next fall the

benefits expected to be derived from this road even in its incomplete state will begin to be felt in the vastly increased amount of business done upon the road.—*Phil. Com. List.*

New York Ocean Steam Marine.

The following names and figures will enable the public to form some idea of the number of ocean steamships now building in this city and its suburbs, or in process of completion, together with their cost and tonnage. It will be found tolerably accurate:

Names.	Agents or Owners.	Ton.	Cost.	Desti- nation.
Pacific,	E. K. Collins,	3500	\$650,000	Liver [pool.
Arctic,	do.	3500	650,000	"
Baltic,	do.	2500	650,000	"
Franklin, Fox & Livingston		2500	350,000	Havre
Havre,	do.	2500	450,000	"
Florida, Samuel Mitchell,		1200	200,000	Sav.
Louisiana,	do.	1200	200,000	"
S. Francisco, J. Howard & S.		2000	300,000	Pacific
(Not named)	Morgan & Harris,	1200	150,000	Gulf
do.	do.	1200	150,000	"
Columbia, Howland & As- pinwall,		800	120,000	[gon. Ore-
(Not named)	Spofford & Tingleston,	1300	200,000	[ton. Cha's-
do.	C. Vanderbilt,	1400	175,000	Pacific
New York, Wm. H. Brown,		700	100,000	Sacra- mento.
(Not named)	do.	700	100,000	"
do.	Nor. & Wor. R.R.	1200	150,000	L. I. [Sound.
do.	Davis & Brooks,	1400	225,000	Pacific

Number of steamships, 17; aggregate tonnage, 29,450 tons; cost, \$4,820,000. Eleven of the above vessels are on the stocks. The remaining six have been launched, and with the exception of the Pacific, are at the different iron works taking in their machinery. The whole number will be finished and despatched to their destination in the course of the present year.

The "San Francisco," alluded to above, was commenced a short time since by Messrs. Perrine, Patterson and Stack, for T. C. Larkin, Priest, &c. representatives of the California Mail Steam Ship Co., of whose line she will be the pioneer. It is intended that she shall be one of the best built and strongest fastened vessels constructed at this port. Her extreme length will be 242 feet, and she will register about 2,000 tons. She will be furnished with double engines, having 80 inch cylinders and 8 feet stroke. She is expected to be ready for sea in January next. Other vessels for this line will probably be contracted for soon.

Louisiana.

Levee Railroad.—The citizens of New Orleans are discussing the proposition of constructing a railroad upon the Levee for the purpose of removing merchandise from one part of it to the other—thus dispensing with drayage, which is at present so costly an item among the port charges of the city. There are now 5000 drays in use there, at an annual expense of \$1000 each, making an aggregate of \$5,000,000 for this item alone.

In relation to this work the Crescent City says:

"The proposed road was to have a double track; it would cost \$100,000; 100 cars would cost \$12,000; 150 mules, harness, etc., \$30,000. The capital invested would be some \$150,000. About 150 men would be employed in loading and unloading at the depots, while gangs of eight or ten would be required at each of the principal streets. Besides this, quite a number would be employed as watchmen. The road would save a very large amount now expended on the Levee for paving. The increased facilities and diminished cost of transportation would add to the amount of produce brought here. It was a well known fact that the expense of loading and unloading ships here was twice as heavy as in London, which was the most expensive city in the world except New Orleans.

The result was that produce was seeking outlets in every direction, in preference to the natural one or the river.

Last year about 50,000 tons of produce had been taken by small boats up the Illinois river and canal to the lakes, and so to N. York. This year it was estimated that the quantity would be doubled. All lost to New Orleans by the heavy charges."

New Jersey.

We learn that the Camden and Amboy, and Delaware and Raritan Canal are about to make a dividend out of the additional value given to the works by the improvements they have received.

The directors report that they have, in the course of the last ten years, expended various sums, taken from the current receipts, in adding to, enlarging and improving the canal and railroad, and in enlarging their original stock of steamboats, cars, engines, etc., to the amount in the aggregate of about \$830,000. The stockholders have passed resolutions directing the board of directors to divide this amount in bonds among the stockholders. The directors will, therefore, soon divide these bonds among the stockholders. The dividend will amount to about \$20 on each share of the canal company, and the Camden and Amboy, and Philadelphia and Trenton railroad companies. The State of New Jersey holds 2,000 shares of the stock of these companies. Her dividend will, therefore amount to \$40,000. About ten years ago the companies made a similar dividend of about \$8 50 a share.

Stickney & Beatty, DEALERS IN IRON AND IRON MANUFACTURERS.

AGENTS for the Balt. City Rolling Mill, from which establishment they are prepared to furnish Ellicott's round, square, and flat bar iron, puddled and charcoal boiler plates and billet iron—also agents for the sale of the Laurel and Maryland (Balt.) charcoal forge pig irons, Balt. hard iron for chilling wheels, anti-Eatam nails, Catocin foundry iron, boiler blooms from the Caledonian works, Wm. Jessop & Son's cast steel, Coleman's blister steel and nail rods, hoop, band, sheet, oval and common English iron.

Nos. 18 and 20 South Charles st., Baltimore.

A young man of experience in Surveying wishes a situation on a Railroad as an Assistant. Please apply at this office.

To Railroad Companies.

FOR SALE—A Second-hand Locomotive Engine and Tender, of about 10 tons weight, in good order, and warranted to perform well. Any company wanting a cheap engine for a passenger or light burden train, will rarely meet with an opportunity so favorable as the present. The engine and tender are in perfect running order, and will be tested to the satisfaction of any one wishing to purchase. Price \$1,500.

Address

J. B. MOORHEAD,

Frazer P.O., Chester county, Pa.

P.S.—The Engine can be seen by calling on H. Osmond & Co., Car-builders, Broad st., Philadelphia. September 6, 1849.

India-rubber for Railroad Cos.

RUBBER SPRINGS—Bearing and Buffer—Ful-ler's Patent—Hose from 1 to 12 inches diameter. Suction Hose. Steam Packing—from 1-16 to 2 in. thick. Rubber and Gutta Percha Bands. These articles are all warranted to give satisfaction, made under Tyer & Helm's patent, issued January, 1849.—No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.

HORACE H. DAY,

Warehouse 23 Courtlandt street.

New York, May 21, 1849.

Spikes, Spikes, Spikes.

ANY person wishing a simple and effective Spike Machine, or a number of them, may be supplied by addressing J. W. FLACK, Troy, N. Y. March 6, 1850.

Lovegrove's Patent Cast Iron Water and Gas Pipes.

THE Subscriber, the Inventor and Patentee of the Centrifugal mode of giving form to metallic substances while in a molten state, is preparing to make Cast Iron Water and Gas Pipes, of any dimensions, at prices much lower than they can be made in the old manner, and the pipes warranted to stand a pressure of three hundred pounds to the square inch, and to be soft enough to drill. Steam Engines and all kinds of machinery. Cast Iron Doors and Frames, and Mill Castings of every description, made to order.

THOMAS LOVEGROVE,

Machinist and Founder,

West Falls Avenue, below Pratt st., Baltimore.

Theodolite for Sale.

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PROPOSALS will be received at the Office of the Morris Canal and Banking Co., Jersey City, till the 1st day of June next, for the Grading, Masonry and Timber work for ten inclined planes on the western division of said canal, to be constructed on the same plan as Plane 6, west. Plans and specifications will be ready at the said Office and at the Office of the Assistant Engineer at Mansfield, Warr n Co., on and after the 25th inst. Contracts to be entered into, and the work commenced immediately after the letting.

On the 30th instant the water will be drawn out of the canal at the head and foot of Plane 6 west, from 10 o'clock A.M. till 3 P.M., to give contractors an opportunity to examine the work to be constructed in the bottom of the canal.

The most satisfactory testimonials of character and responsibility must accompany the bids, and bidders are requested to state what other work, if any, they are engaged on, and the time when such work will be finished. W. H. TALCOTT, Supt. and Eng. Jersey City, May 14, 1850.

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N.B.—This work is published by subscription of the most eminent in the engineering profession of the U. States, and will be completed in 12 parts, at 75 cents each to those who remit their names and subscriptions before the 1st June next—when the first 6 parts or one half of the work will be published—after which the price will be raised to \$1 per part.

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Steamer Bay State, Oct. 22d, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: In answer to your request for my testimony as to the machinery oil manufactured by you, I will say that I have used it for some time past on the Bay State, and am perfectly satisfied that your statement to me of its good qualities, is correct. As far as its lasting properties go, it wears equally long as sperm oil, runs perfectly free, and has no appearance of thickening. As seeing is better than hearing, I would recommend you to send your friends on board our boat, and they can then, by ocular demonstration, judge for themselves. Yours respectfully, **JOHN GRAY**,
Engineer of Steamer Bay State, Pier 3, N.R.

Steamboat Knickerbocker, Sept. 22, 1849.

Gentlemen: Mr. Hall, Agent of the Norwich and New London Steamboat Co., placed in my hands some of your machinery oil, which he desired me to use on the engine and other machinery, which I have done, and was so much pleased with the working, that I recommended the owners to give you their orders.

I have been using the article since August 19, and with perfect satisfaction, and I am well satisfied that your oil is as good as the best of sperm for lubricating machinery. I am yours very respectfully,

SAMUEL CARTER,

Engineer of Steamboat Knickerbocker, Pier 18, N.R.
To Messrs. Robbins, Langdon & Co.,
Oil Merchants, 133 Water street, New York.

Steamboat Worcester, N. York, Oct. 15, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: I beg to acknowledge the receipt of your letter requesting my opinion as to your oil for machinery, which I had not time to reply to previous to my return to Norwich. I have been using your oil on the engine and machinery of the Worcester with perfect success, and have much pleasure in testifying as to its good qualities. In my opinion, the journals keep cooler with your oil than with sperm, and it wears equally well. Should you at any time wish to refer to me as to your oil, I beg you will do so without hesitation. Yours respectfully, **JAS. CROOKER**,
Engineer Steamboat Worcester, Pier 18, N.R.

New York, August 3d, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: I received your letter in regard to your oil for machinery, which I handed to our engineer, and have much pleasure in sending you an extract from his letter to me on the subject: "I have applied the oil sent me upon our hot journals and cylinders, and find that they keep cooler with it than with sperm oil. I cannot find any fault with the oil, although I have watched it carefully. I have also tried it against an equal quantity of sperm oil, and find it wears quite as well." You are quite at liberty to show this extract to your friends, and shall be happy to give any further certificate you may require. **WM. RIDER**,
Treasurer Union India-rubber Co., 19 Nassau st. N.Y.

New York, March 22d, 1850.

Messrs. Robbins, Langdon & Co.,

Gentlemen: I have been using your machinery oil on the engine and other machinery of the Steamer Southern running from this to Charleston, and find it equal to sperm oil. I shall continue the use of the same, and you are at liberty to refer to me at any time. Yours respectfully, **DAVID N. MAXON**,
Chief Engineer Steamer Southern.

Steamboat C. Vanderbilt, N. York, Oct. 11, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: In reply to your inquiries respecting the qualities of your machinery oil, I am happy to inform you that I have been using the article sent me for some time past, not only on the engine but on all other machinery connected with it: and from a careful and close examination, I am well satisfied that your oil is as good as the best of sperm oil for lubricating machinery. I have recommended Mr. Lockwood the agent of the company, to give you their orders.

Yours respectfully, **JAMES BAKER**,
Engineer Steamboat C. Vanderbilt, Pier 3, N.R.

Brooklyn, August 29, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: Your letter of the 29th was received, and I am happy to inform you that I have used your machinery oil throughout my establishment, and I am still of the opinion that it is as good as the best of sperm oil for lubricating machinery. I should be pleased at any time to have your friends witness the working, and I am sure, after once doing so, will give you their orders. Please send me another cask by the evening of the 3d, and by so doing you will much oblige.

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Cozzens, W. H.,
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South Oyster Bay, L. I.

Gzowski, Mr.,
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Rahway, New Jersey.

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February 9, 1850. 6m*

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most favorable terms.They will also make contracts for American rails,
made at their Trenton works, from Andover Iron, in
whole or in part, as may be agreed upon.They are prepared to furnish Telegraph, Spring and
Market Wire; Braziers and Wire Rods; Rivets and
Merchant Bars to order, all made exclusively from An-
dover Iron. The attention of parties who require iron
of the very best quality for special purposes, is respect-
fully invited.

COOPER & HEWITT,

17 Burling Slip, New York.

February 15, 1850.

Glendon Refined Iron.Round Iron, Band Iron, Hoop Iron,
Square " Flat " Scroll "

Axles, Locomotive Tyres,

Manufactured at the Glendon Mills, East Boston, for
sale by

GEORGE GARDNER & CO.,

5 Liberty Square, Boston, Mass.

Sept. 15, 1849. 3m37

**PATENT HAMMERED RAILROAD, SHIP &
BOAT SPIKES.**The Albany Iron Works
have always on hand, of their own manufacture, a
large assortment of Railroad, Ship and Boat Spikes
from 2 to 12 inches in length, and of any form of head
From the excellence of the material always used in
their manufacture, and their very general use for rail-
roads and other purposes in this country, the manu-
facturers have no hesitation in warranting them fully
equal to the best spikes in market, both as to quality
and appearance. All orders addressed to the subscrib-
ers at the works will be promptly executed.

JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.

The above Spikes may be had at fact prices, of
Erastus Corning & Co Albany; Merrill & Co., New
York; E. Pratt & Br Iron, Baltimore Md**LAP—WELDED****WROUGHT IRON TUBES**

FOR

TUBULAR BOILERS,FROM ONE AND A QUARTER TO SEVEN
INCHES IN DIAMETER.THE ONLY Tubes of the same quality and man-
ufacture as those so extensively used in England,
Scotland, France and Germany, for Locomotive, Ma-
rine and other Steam Engine Boilers.

THOMAS PROSSER & SON, Patentees,

28 Platt street, New York.

Railroad Iron.THE UNDERSIGNED ARE PREPARED TO
contract for the delivery of English Railroad Iron
of favorite brands, during the Spring. They also re-
ceive orders for the importation of Pig, Bar, Sheet, etc.
Iron.

THOMAS B. SANDS & CO.,

22 South William street,

February 3, 1849. New York.

Iron Store.THE Subscribers, having the selling agency of the
following named Rolling Mills, viz: Norristown,
Rough and Ready, Kensington, Philadelphia, Potts-
grove and Thorndale, can supply Railroad Companies,
Merchants and others, at the wholesale mill prices for
bars of all sizes, sheets cut to order as large as 58 in.
diameter; Railroad Iron, domestic and foreign; Loco-
motive tire welded to given size; Chairs and Spikes;
Iron for shafting, locomotive and general machinery
purposes; Cast, Shear, Blister and Spring Steel; Bol-
ter rivets; Copper; Pig iron, etc., etc.

MORRIS, JONES & CO.,

Iron Merchants,

Schuylkill 7th and Market Sts., Philadelphia.

August 16, 1849. 1y33

Railroad Iron.THE MOUNT SAVAGE IRON WORKS, AL-
legany county, Maryland, having recently pass-
ed into the hands of new proprietors, are now prepar-
ed, with increased facilities, to execute orders for any
of the various patterns of Railroad Iron. Communi-
cations addressed to either of the subscribers will have
prompt attention. J. F. WINSLOW, President

Troy, N. Y.

ERASTUS CORNING, Albany

WARREN DELANO, Jr., N. Y.

JOHN M. FORBES, Boston.

ENOCH PRATT, Baltimore, Md.

November 6, 1848.

Railroad Iron.THE SUBSCRIBERS ARE PREPARED TO
take orders for Railroad Iron to be made at their
Phoenix Iron Works, situated on the Schuylkill Riv-
er, near this city, and at their Safe Harbor Iron Works,
situated in Lancaster County, on the Susquehanna
river; which two establishments are now turning out
upwards of 1800 tons of finished rails per month.Companies desirous of contracting will be promptly
supplied with rails of any required pattern, and of the
very best quality.

REEVES, BUCK & CO.

45 North Water St. Philadelphia.

March 15, 1849.

Monument Foundry.

A. & W. DENMEAD & SON.
Corner of North and Monument Sts.,—Baltimore,

HAVING THEIR
IRON FOUNDRY AND MACHINE SHOP
in complete operation, are prepared to execute

faithfully and promptly, orders for
Locomotive or Stationary Steam Engines,
Woolen, Cotton, Flour, Rice, Sugar Grist, or Saw
Mills,
Slide, Hand or Chuck Lathes,
Machinery for cutting all kinds of Gearing.
Hydraulic, Tobacco and other Presses,
Car and Locomotive patent Ring Wheels, war-
ranted,

Bridge and Mill Castings of every description,
Gas and Water Pipes of all sizes, warranted,
Railroad Wheels with best faggotted axle, fur-
nished and fitted up for use, complete

Being provided with Heavy Lathes for Bor-
ing and Turning Screws, Cylinders, etc., we can
furnish them of any pitch, length or pattern.

Old Machinery Renewed or Repaired—and
Estimates for Work in any part of the United States
furnished at short notice.

June 8, 1849.

Iron Wire.

REFINED IRON WIRE OF ALL KINDS.
Card, Reed, Cotton-flyer, Annealed, Broom,
Buckle, and Spring Wire. Also all kinds of Round,
Flat or Oval Wire, best adapted to various machine
purposes, annealed and tempered, straightened and
cut any length, manufactured and sold by

ICHABOD WASHBURN.

Worcester, Mass., May 25, 1849.

American and Foreign Iron.**FOR SALE,**

300 Tons A 1, Iron Dale Foundry Iron.
100 " 1, " " "
100 " 2, " " "
100 " " Forge " "
400 " Wilkesbarre " "
100 " "Roaring Run" Foundry Iron.
300 " Fort " "
50 " Catoctin " "
250 " Chikiswalungo " "
50 " "Columbia" "chilling" iron, a very su-
perior article for car wheels.
75 " "Columbia" refined boiler blooms.
30 " 1 x 1/2 Slit iron.
50 " Best Penna. boiler iron.
50 " "Puddled" " "
50 " Bagnall & Sons refined bar iron.
50 " Common bar iron.

Locomotive and other boiler iron furnished to order.

GOODHUE & CO.,

New York.

64 South street

American Pig, Bloom and Boiler Iron.

HENRY THOMPSON & SON,
No 57 South Gay St., Baltimore, Md.,

Offer for sale Hot Blast Charcoal Pig Iron made at
the Catoctin (Maryland), and Taylor (Virginia), Fur-
naces; Cold Blast Charcoal Pig Iron from the Clover-
dale and Catawba, Va., Furnaces, suitable for Wheels
or Machinery requiring extra strength; also Boiler
and Flue Iron from the mills of Edge & Hilles in Del-
aware, and best quality Boiler Blooms made from Cold
Blast Pig Iron at the Shenandoah Works, Va. The
productions of the above establishments can always be
had at the lowest market price, for approved paper.

American Pig Iron of other brands, and Rolled and
Hammered Bar Iron furnished at lowest prices. Ag-
ents for Watson's Perth Amboy Fire Bricks, and
Rich & Cos. New York Salamander Iron Chests,
Baltimore, June 14, 1849. 6 mos

Wheel, Forge and Foundry Iron.

LOCUST GROVE Wheel Iron of great strength
and superior chilling property.

Balt. Charcoal Forge Iron, from Patuxent, Curtis
Creek and Gunpowder furnaces.

Elkridge Foundry Iron, of superior strength and
softness. Anthracite and Charcoal Iron from Penn-
sylvania and Virginia. Gas and Water Pipes, Lamp
Posts from Elkridge furnace.

LEMMON & GLENN,

6m5

62 Buchanan's Wharf, Baltimore.

Iron.

THE SUBSCRIBERS having resumed the agency
of the New-Jersey Iron Company, are prepared
to execute orders for the different kinds and sizes of
Iron usually made at the works of the company, and
offer for sale on advantageous terms.—

150 tons No. 1 Boonton Foundry Pig Iron.

100 " No. 2 do. do. do.

300 " Nos. 2 & 3 Forge do. do.

100 " No. 2 Glendon do. do.

140 " Nos. 2 & 3 Lehigh Crane do do.

100 " No. 1 Pompton Charcoal do.

100 " New-Jersey Blooms

50 " New-Jersey Faggoting Iron, for shafts

Best Bars, 1/2 to 4 inch by 1/2 to 1 inch thick.

Do do Rounds and Squares, 1/2 to 3 inch.

Rounds and Squares, 3-16 to 1 inch.

Half Rounds, 1/2 to 1 in. Ovals & Half Ovals 1/2 to 1 1/2 in.

Bands, 1 1/2 to 4 inch. Hoops, 1/2 to 2 inch.

Trunk Hoops, 1/2 to 1 1/2 in. Horse Shoe & Nut Iron.

Nail Plates. Railroad Spikes.

DUDLEY B. FULLER & Co., 139 Greenwich-

st. and 85 Broad-st.

WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly re-
ceiving from their manufactory,

PARK WORKS, SHEFFIELD,

Double Refined Cast Steel—square, flat and octagon.

Best warranted Cast Steel—square, flat and octagon.

Best double and single Shear Steel—warranted.

Machinery Steel—round.

Best and 2d gy. Sheet Steel—for saws and other pur-
poses.

German Steel—flat and square, "W. I. & S." "Eagle"

and "Goat" stamps.

Genuine "Sykes," L. Blister Steel.

Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favora-
ble terms by

WM. JESSOP & SONS,

91 John street, New York.

Also by their Agents—

Curtis & Hand, 47 Commerce street, Philadelphia.

Alex'r Fullerton & Co., 119 Milk street, Boston.

Stickney & Beatty, South Charles street, Baltimore.

May 6, 1848.

JOHNSON, CAMMELL & Co's Celebrated Cast Steel,

AND
ENGINEERING AND MACHINE FILES,

which for quality and adaptation to mechanical uses,
have been proved superior to any in the United States.
Every description of square, octagon, flat and round
cast steel, sheet, shovel and railway spring steel, best
double and single shear steel, German steel, flat and
square, goat stamps, etc. Saw and file steel, and steel
to order for any purposes, manufactured at their Cy-
clops Steel Works Sheffield.

JOHNSON, CAMMELL & CO.,

100 William St., New York.

November 23 1849.

Railroad Iron.

OF ANY PATTERN AND WEIGHT,
Of a Favorite Brand,

And deliverable in Bond, or Duty paid, at any Port of
the U. S., contracted for on favorable terms, by

CHARLES ILLIUS,

20 Beaver St., New York.

Pig and other Iron also contracted for. Sole Agent
for "Baxter's Machine and Burning Oil"—particu-
larly adapted for "Railroads" and other Machinery—
Preferred to Sperm by the many now using it, and 25
per cent. cheaper.

CUT NAILS OF BEST QUALITY, BAR IRON
(including Flat Rails) manufactured and for sale
by

FISHER, MORGAN & CO.,

75 N. Water St., Philadelphia.

Ogden & Martin's ROSENDALE CEMENT.

WE are prepared to enter into arrangements for
supplying our Cement for public works or other
purposes. We warrant the cement equal in every re-
spect to any manufactured in this country. It attains
a great degree of hardness, sets immediately under
water, and is a superior article for masonry coming in
contact with water, or requiring great strength.

For sale in tight barrels, well papered, at their office
by

OGDEN & MARTIN, 104 Wall st.

February 16, 1850. 1y*

The above cement is used in most of the fortifica-
tions building by government.

To Steam Engine Builders.

THE Undersigned offer for sale, at less than half its
cost, the following new machinery, calculated for
an engine of 62 inches cylinder and 10 feet stroke, viz.

2 Wrought Iron Cranks, 60 inches from centre to
centre.

1 Do. do. Connecting Rod Strap.

2 Do. do. Crank Pins.

1 Eccentric Strap.

1 Diagonal Link with Brasses.

1 Cast Iron Lever Beam (forked).

The above machinery was made at the West Point
Foundry for the U. S. Steamer Missouri, without re-
gard to expense, is all finished complete for putting to-
gether, and has never been used. Drawings of the
cranks can be seen on application to

HENRY THOMPSON & SON,

No. 57 South Gay St., Baltimore, Md.

Sept. 12, 1849.

8,000 Tons Railroad Iron.

**THE OHIO AND PENNSYLVANIA RAIL-
ROAD CO.** wish to contract for eight thousand
tons of Railroad Iron, for the eastern division of their
road, extending westward from Pittsburgh. Three
thousand tons to be delivered on the Ohio river at
Pittsburgh and Beaver, before the close of canal navi-
gation in the present year, 1850; and the remainder
in the spring of next year. The rails are to be of the
H pattern, in lengths of 20 feet, and are to weigh 60
lbs. per lineal yard. They are to be subject to the in-
spection of Solomon W. Roberts, Chief Engineer.—
For further particulars address the President of the
Company at Pittsburgh.

By order of the Board of Directors.

WM. ROBINSON, Jr., President.

S. S. Keyser & Co., IRON WAREHOUSE,

Corner of South and Pratt Streets,

BALTIMORE, MD.

Selling Agents for the Rough and Ready Bar Iron
and Elk Boiler and Flue Iron Rolling Mills, Sarah
and Taylor Furnaces, and Wrightsville Hollow Ware
Foundry, and Dealers in Bar and Sheet Iron, and
Cast, Sheer, German, Blister, Spring and Electro-
lised Steel, etc., etc.

Smith & Tyson,

GENERAL COMMISSION MERCHANTS,

No. 25 South Charles St., Baltimore, Md.

AGENTS for the Celebrated Columbia Pig Iron,
suitable for Car Wheels and Chilled Rolls.

Columbia refined Charcoal Blooms; Refined Char-
coal Juniatta Billet Iron for Wire; Refined Iron for
Bridging, of great strength; Cut Nails, Spikes, and
Brads; Railroad Spikes and Wrought Chairs. 22 1/2

To Railroad Companies and Contractors.

FOR SALE.—Two Locomotive Engines and Ten-
ders, at present in use on the Beaver Meadow
Railroad, being too light for their coal trains, but well
calculated for either gravel or light passenger trains.

They weigh, in running order, about 8 tons each—
having one pair of driving wheels 4 feet diameter, 4
truck wheels 30 inches diameter, with cylinders 10 in.
diameter, and 18 inches stroke of piston. Tenders on
4 wheels. Address

JAMES ROWLAND,

Prest. Beaver Meadow Railroad & Coal Co.,

Philadelphia.

or, **L. CHAMBERLAIN, Sec'y,**

at Beaver Meadow, Pa.

May 19, 1849. 20 1/2

Railroad Instruments.

THEODOLITES, TRANSIT COMPASSES,
and Levels, with Fraunhoffer's Munich Glasses,
Surveyor's Compasses, Chains, Drawing Instru-
ments, Barometers, etc., all of the best quality and
workmanship, for sale at unusually low prices, by

E. & G. W. BLUNT,

No. 179 Water St., cor. Burling Slip.

New York, May 19, 1849.

Rosendale Cement.

**THE NEWARK AND ROSENDALE LIME
AND CEMENT CO.** are now manufacturing at
their works in NEWARK, N. J., and Ulster county,
N. Y., a very superior article of *Hydraulic Cement*—
also Lime Calcine Plaster, etc. Contractors and dea-
lers will find it to their advantage to call or make ap-
plication before purchasing elsewhere. All commu-
nications addressed to the subscriber, at Newark, N. J.,
will be punctually attended to.

1y*15

HENRY WILDE, Secretary.

Patent India Rubber Steam Packing.

THIS article, made by the subscriber, who alone is authorised to make it, is warranted to stand as high a degree of heat as any that has been or can be made by any person—and is the article which has made the reputation of India Rubber Steam Packing and the demand therefor. A large assortment of all thicknesses requisite for any description of engines, steam pipes, valves, etc., constantly on hand and for sale by the manufacturer and patentee, who will give every information regarding its properties, mode of use, etc. at the warehouse. JOHN GREACHEN, JR., 98 Broadway, opposite Trinity Church. New York, October, 1849.

Passenger Car Linings.

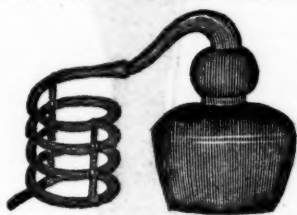
THE Advertiser continues to make to order the Enamelled Car Linings which have been so highly approved the last three years, and are now exclusively used by all the Northern Railroads. No pains are spared to get out new styles, and adapt them to the tastes of every consumer.

Orders addressed to CHARLES STODDER, No. 75 Kilby street, Boston, will have prompt attention. March 23, 1850. 2m

CAUTION.

RAILROAD COMPANIES and others are hereby cautioned against using or vending our improvement for easing the lateral motion as applied on Railroad Cars. Letters Patent having been granted to us in 1841, any party or parties so making or using said improvement without license from us will be proceeded against according to law.

DAVENPORT & BRIDGES.



P. H. Griffin,

Corner of Steuben and James Sts. Albany, N.Y. CONTINUES to manufacture copper flues for locomotive boilers, brewers' coppers, stills, tanner heaters, etc. Copper work in general, at the shortest notice. He has constantly on hand brass cocks, brass valves, copper pumps of every variety. Orders promptly attended to. 1y14

FOWLER M. RAY'S Patent India-rubber Railroad CAR SPRING.

New York and Erie Railroad Shops. Piermont, March 26, 1850.

This will certify that from practical experience in the use of Fowler M. Ray's India rubber Car Springs, I believe them to be far superior to any others now in use.

I have never known them to be affected by any change of temperature, as other Rubber Springs have been affected on this road.

I am at the present time repairing a Passenger Car that Mr. Ray and myself mounted with his springs about two years and eight months since.

The springs are at the present time as perfect, to all appearances, as when first applied to the car.

Respectfully yours,

HORACE B. GARDNER, Foreman of the Car Shops.

Supt. Office N.Y. & H. R.R., } New York, March 8, 1850. }

This is to certify that we have used the Rubber Springs manufactured by Mr. F. M. Ray for the past twenty months, "both for Passenger and Freight Car Springs and Bumpers, and of different sizes," and have in every case given entire satisfaction, and I consider them the best spring now in use.

M. SLOAT, Supt.

Harlem R.R. Depot, } New York, March 7, 1850. }

This is to certify that we have used Mr. F. M. Ray's India-rubber Springs for over eighteen months, and find them to be easy and durable, and recommend them to railroad companies as being superior to anything we have tried.

J. M. SMART, Foreman at 42d St. Depot.

Office New Jersey Railroad Co., } Jersey City, March 8, 1850. }

FOWLER M. RAY, Esq.,

Dear Sir: In answer to your enquiries respecting the operation of the Vulcanised Rubber Springs, purchased by our company from you some two years since, I reply that they are superior to any spring in use, (that I have either seen or heard of).

The improved form of your spring, consisting of a solid piece of vulcanised rubber with bands on the outside, is far superior to your first form, consisting of disks of rubber with metallic plates interposed.

The last named form was tried, if you recollect, at a much earlier period; and then was replaced by your last form.

I have no hesitation in saying that your springs have given entire satisfaction, and most cheerfully recommend them to railroad companies throughout the country for the following reasons:

1st. The cost is 30 per cent. less.
2d. Saving of weight on each car of 8 wheels from 700 to 800 lbs.

3d. Less care and attention is required, as they are not liable to get out of repair.

4th. A great saving is secured in the wear and tear of the cars and rails from their great elasticity.

5th. The freedom from noise.

6th. There is greater safety in case of accident, as they cannot be broken.

7th. The comfort of passengers is enhanced sufficiently to pay the expense, waiving all the other reasons that I have given.

Should this fail to satisfy any person enquiring, you are at liberty to refer to me, No. 150 Washington St., Jersey City. Yours respectfully,

T. L. SMITH, Supt.

New York, March 11, 1850.

I have used the Patent India-rubber Spring purchased of Mr. Ray, upon the cars of the New York and New Haven Railroad, and have found them efficient and economical; and when applied to the axles and draw springs, believe them to be quite equal to any in use. I have found a combination of these springs with a steel spring under the transom beam a very satisfactory arrangement, and am now using this plan in all new cars.

Yours respectfully,
ROBERT SCHUYLER.

February 25, 1850.

From practical observation of the use of the India-rubber Car Springs, manufactured and sold by your company, we are entirely satisfied in their application, and do not hesitate to recommend them as elastic, durable, requiring no repairs for years, and retaining their consistency during all extremes of weather. We have applied them for the past two years, and consider them superior for all railroad purposes.

Yours truly,

OSGOOD BRADLEY, Car Builder, Worcester.
T. & C. WASON, do. Springfield.
DEAN, PACKARD & MILLS, do. do.
DAVENPORT & BRIDGES, do. Cambridgeport.

Office of the New Jersey Railroad Co., } Jersey City, March 7, 1850. }

This is to certify that we have had Mr. F. M. Ray's India-rubber Springs in constant use under our cars, and as Bumper Springs for upwards of two years, and they have in every way given perfect satisfaction.

The present form of spring we deem far superior to the form of Disk, having used both forms, although we have none of those made in Disks at present in use.

We take pleasure in recommending these springs to all railroad companies.

J. P. JACKSON, Vice Prest.
New Jersey Railroad and Trans. Co.

Roxbury, February 28, 1850.

In compliance with your request, I take great pleasure in stating the result of my experience in the use of "Ray's Patented Vulcanised India-rubber Car and Engine Springs." We have used them nearly two years, and never had one fail in any way. The cold weather does not affect them, as it has other rubber springs we have used.

With sixteen years' experience as superintendent of machinery on the Boston and Providence railroad, I take pleasure in saying that your springs are the best we ever used, or I ever saw used elsewhere. We have 20 cars rigged with them, of which I can say that the springs are as good now as when first applied. I put 24 lbs. of the rubber under the forward end of one of our heaviest engines, taking off 250 lbs. of steel springs—it has been in use 18 months, and is in as good condition now as when first put under the engine.

Very respectfully yours,

GEO. S. GRIGGS, Supt. of Machinery, Boston and Prov. R.R.

Fall River, February 2, 1850.

In answer to yours of the 20th ult. I would say that this company has for some 10 or 12 months past been using "Ray's India-rubber Springs." We have applied them to both passenger and freight cars with uniform success. They have invariably preserved their elasticity and consistency through all the extremes of weather; and we are now applying them whenever the steel spring fails. I am well satisfied that they are particularly adapted for railroad purposes.

Very respectfully yours,

GEO. HAVEN, Supt. Fall River Railroad.

Jersey City, March 9, 1850.

This is to certify that the present form of Mr. F. M. Ray's India-rubber Car Spring I consider far superior to the form of Disk, having used both forms.

I take pleasure in recommending these springs to all railroad companies. DAVID H. BAKER, Foreman of Car Shop of N.J. R.R. & Trans. Co.

Boston, March 5, 1850.

In answer to your enquiry about India-rubber Springs, I have to say that we have used them to a considerable extent on both freight and passenger cars, and also on several of our tenders; and I am very well satisfied that they answer all the purposes for which they are intended. I believe the India-rubber will soon supersede all other springs for cars and tenders.

Yours truly,

S. M. FELTON, Supt. Fitchburg Railroad.

Old Colony Railroad Office, Boston, March 6, 1850.

EDWARD CRANE, Esq.,

President New England Car Co.,

Dear Sir: In compliance with your request I would state that the Old Colony Railroad Company have had in use upon their road, India-rubber Springs furnished by your company, for more than eighteen months past, during which time they have been extensively used under Passenger and Freight Cars, Locomotive Tenders, and for Drawer and Buffing Springs, with the most perfect success. The elasticity and consistency of the Rubber has never been unfavorably affected by either extremes of heat or cold—and from the experience which we have had in the use of Rubber Springs, I think them well adapted for railroad purposes—and therefore we have for some months past used Rubber almost exclusively, in all places where springs are required.

Respectfully yours, etc.,

JAS. H. MOORE, Supt. O. C. Road.

Troy, February 27, 1850.

We have been using your India-rubber Car Springs for nearly two years—and we take pleasure in saying that in our opinion the rubber has to a certain extent already, and may eventually entirely supersede all other Springs for Railroad Car purposes. We now use it entirely for Draw Springs and Bumpers, considering it better and lighter than steel.

During our two years' experience in the use of it, we have not known any to lose their elasticity, or fail in any way; and we cheerfully recommend the rubber for railroad car springs. Very respectfully,

EATON, GILBERT & CO.

To Practical Machinists.

AN excellent opportunity now occurs to a practical Machinist, of WELL ESTABLISHED REPUTATION, and some capital, to engage extensively in the STEAM ENGINE, BOILER AND FOUNDRY BUSINESS.

An establishment is now ready for business, ample in all its details, including extensive wharf room, for any sized steamboats, and from its position, if properly conducted, will doubtless command a large share of business.

A practical Machinist, as a partner is required, to conduct the whole establishment: and only those FULLY COMPETENT need apply. Address (post paid) "MACHINE CO.," Box No. 741, Philadelphia, Pa. 1m14

Etna Safety Fuse.

THIS superior article for igniting the charge in wet or dry blasting, made with DUPONT'S best powder, is kept for sale at the office and depot of

REYNOLDS & BROTHER,

Sole Manufacturers, No. 85 Liberty St. NEW YORK.

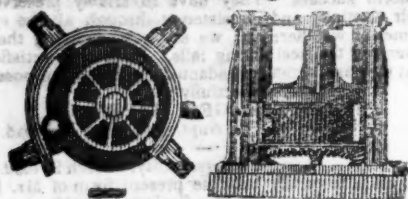
And in the principal cities and towns in the U. States. The Premium of the AMERICAN INSTITUTE was awarded to the Etna Safety Fuse at the late Fair held in this city.

November 3, 1849.

1y

MACHINERY.

Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phoenixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has given universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous; considerable saving in first cost; saving in power; the entire saving of shingler's, or hammerman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll sounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery for making Spikes, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, Agent,
Troy Iron and Nail Factory, Troy, N. Y.

RAILROAD WHEELS.

CHILLED RAILROAD WHEELS.—THE UNDERSIGNED are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

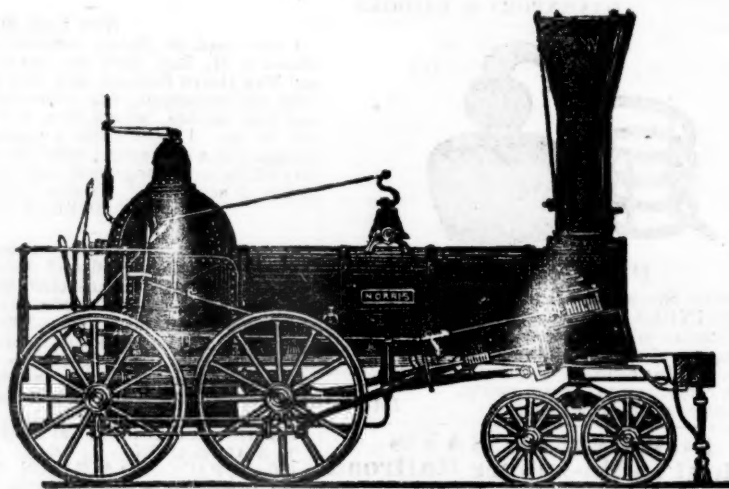
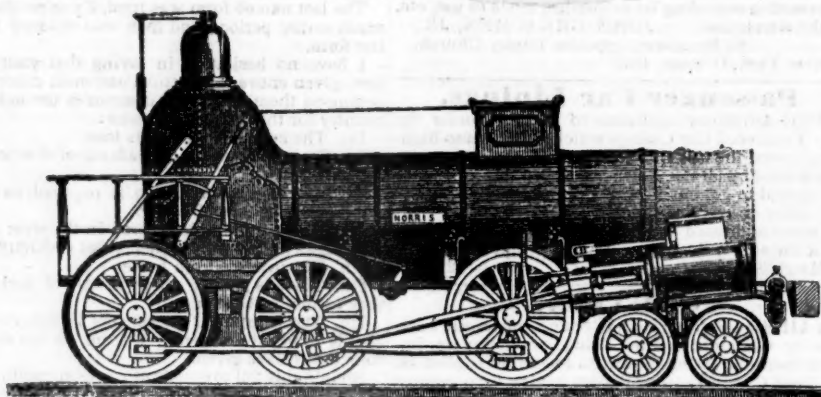
A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

CHILLED RAILROAD WHEELS.—THE UNDERSIGNED, the Original Inventor of the Plate Wheel with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.

A. TIERS,
Point Pleasant Foundry.

He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country.

Kensington, Philadelphia Co.,
March 12, 1848.

NORRIS' LOCOMOTIVE WORKS.
BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA.

THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size. Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tyres are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This Cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by

JOHN W. LAWRENCE,
142 Front-street, New York.

Orders for the above will be received and promptly attended to at this office.

32 ly.

PATENT MACHINE MADE HORSE-SHOES.

The Troy Iron and Nail Factory have always on hand a general assortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

P. A. BURDEN, Agent,
Troy Iron and Nail Factory, Troy, N. Y.

COLUMBUS, OHIO,
Railroad Car Manufactory.
RIDGWAYS & KIMBALL,

HAVE established at this central point, the manufacture of Passenger, Freight, Gravel and Hand Cars for Railroads, and assure all Western Railroad Companies that it will be their constant aim to procure the best materials and workmen, and to turn out the best kind of work at fair prices. Specimens may be seen on the Columbus and Xenia Railroad. The patronage of Railroad Companies is respectfully solicited.

1y8

To Inventors and Patentees.

OWEN G. WARREN, ARCHITECT, Has had many years' experience as Agent for obtaining Patents, both in this country and Europe, and will transact such business promptly and reasonably. Persons at a distance can have their business done by correspondence—without the necessity of visiting this city or Washington. Office No. 94 Merchants Exchange, Wall st., corner of Hanover st., up stairs.

1y3

Mr. Hale:—"The New England Car Co., having been engaged for the last six months in introducing the Vulcanized India-rubber Car Springs upon the different railroads in this and other states, and having in particular introduced it upon the Boston and Worcester railroad with perfect success, were much gratified to find, by your paper of this morning, that the article had given satisfaction to the president of that corporation, and the terms of just commendation in which you were pleased to speak of it. But their gratification was scarcely equalled by their surprise, when, or arriving at the close of your paragraph, they found the results of all their labors attributed to a foreign source, with which the New England Car Co. has no connection. The material used on the Boston and Worcester railroad, and all the other railroads in this country, where any preparation of India-rubber has been successfully applied, is entirely an American invention, patented in the year 1844 to Charles Good-year, of New Haven, Conn., and the application of it to this purpose and the form in which it is applied are the invention of F. M. Ray of New York. The only material now in use, and so far as has yet appeared, the only preparation of India rubber capable of answering the purpose, has been furnished under these patents by the New England Car Company, manufactured under the immediate inspection of their own agent. If any other should be produced, the right to use it would depend upon the question of its interference with Mr. Goodyear's patent. The New England Car Company have their place of business in this city at No. 99 State street, and are prepared to answer all orders for the Vulcanized India rubber Car Springs, of the same quality and of the same manufacture as those which they have already placed on your road, and most for the other roads terminating in this city."

And yet Mr. Knevit is using these experiments made upon the Springs of the Car Company to induce the public to purchase his springs, and is attempting to impose upon them the belief that the springs used were furnished by him! We ask whether such a course is honorable, or entitles his statements to much consideration from the public.

The above Springs are for sale 98 Broadway, New York, and 99 State street, Boston.

EDWARD CRANE Agent, Boston.
F. M. RAY, Agent, New York.

Boston, May 8, 1849.

Ballard's Improved JACK-SCREW.

PATENTED.

THE ADVANTAGES OF THIS Screw for Stone Quarries, Railroads, Steam Boiler Builders, and for other purposes are superior to any other similar machine.

The improvement consists in being able to use either end of the screw, as occasion requires.

It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

Many Railroad Companies and Boiler Makers have them in use—by whom they are highly recommended.

JACK SCREWS, of various sizes, power and price, constantly on hand at the manufactory.

No. 7 Eldridge Street,
near Division Street.
New York, Jan. 19, 1850.



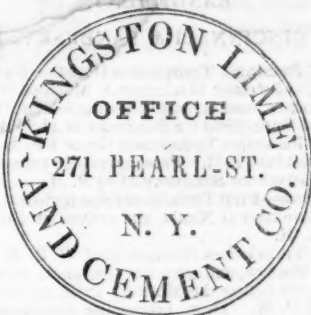
NICOLL'S PATENT SAFETY SWITCH FOR Railroad Turnouts. This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable.

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridge Port, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, on application to the Subscriber, Inventor and Patentee,
G. A. NICOLLS,
Reading, Pa.

Hydraulic Cement.



HYDRAULIC CEMENT, OF BEST QUALITY, manufactured at their works, for sale in lots to suit purchasers.

Also, Ground Lime, a superior article for Builders.
ISAAC FRYER, Sec'y.
January 19, 1850. ly

Engine and Car Works, PORTLAND, MAINE.

THE PORTLAND COMPANY, Incorporated August 8th, 1846, with a capital of \$250,000, have erected their extensive Works upon the deep water of Portland Harbor, and receive and transport, to and from their works direct, to and from vessels of any class.

They now manufacture to order, and deliver upon the Railroads running in each direction from the city, or on shipboard as wanted, Locomotive, Stationary, or Steam Boat Engines; Passenger, Mail, Freight, Earth and Hand Cars; Railway Frogs, Switches, Chairs and Castings; and every other description of Machinery.

HORACE FELTON,
Superintendent.

JAMES C. CHURCHILL,
General Agent and Clerk.

RAILROADS.

EASTERN RAILROAD.



WINTER ARRANGEMENT.



On and after Monday, October 8, 1849, trains leave Boston daily (Sundays excepted);

For Lynn, 7, 8 $\frac{1}{2}$, 10 a.m., 12 $\frac{1}{2}$, 2 $\frac{1}{2}$, 4, 4 $\frac{1}{2}$, 6 $\frac{1}{2}$ p.m.
Salem, 7, 8 $\frac{1}{2}$ 10 a.m., 12 $\frac{1}{2}$, 2 $\frac{1}{2}$, 4, 4 $\frac{1}{2}$, 6 $\frac{1}{2}$ p.m.
Manchester and Gloucester, 10 a.m., 4 p.m.
Newburyport, 7 a.m., 12 $\frac{1}{2}$, 2 $\frac{1}{2}$ 4 $\frac{1}{2}$ p.m.
Portsmouth, 7 a.m., 2 $\frac{1}{2}$, 4 $\frac{1}{2}$ p.m.
Portland, Me., 7 a.m., 2 $\frac{1}{2}$ p.m.

And for Boston,

From Portland, 8 $\frac{1}{2}$ a.m., 4 p.m.
Portsmouth, 7, 10 $\frac{1}{2}$ a.m., 6 $\frac{1}{2}$ p.m.
Newburyport, 7 $\frac{1}{2}$, 11 $\frac{1}{2}$ a.m., 3 $\frac{1}{2}$ 7 $\frac{1}{2}$ p.m.
Gloucester, 7 $\frac{1}{2}$ a.m., 1 $\frac{1}{2}$ p.m.
Manchester, 8 a.m., 2 p.m.,
Lynn, 7 $\frac{1}{2}$, 8 $\frac{1}{2}$ 9 $\frac{1}{2}$, 10 $\frac{1}{2}$ a.m., 12 55*, 2 $\frac{1}{2}$ 4 $\frac{1}{2}$ * 8 $\frac{1}{2}$ * p.m.
Salem, 7 $\frac{1}{2}$, 8 $\frac{1}{2}$ 9*, 10 $\frac{1}{2}$ a.m., 12 40*, 2 $\frac{1}{2}$ 4 $\frac{1}{2}$ * 8*, p.m.

*Or on their arrival from the East.

Freight trains each way daily. Office 17 Merchants' Row, Boston.

Feb. 3. **JOHN KINSMAN,** Superintendent.

ALBANY AND BUFFALO RAILROADS.

Four Trains daily, Sundays excepted, viz:
Leave Albany, 6 a.m., 9 a.m., 2 p.m., 4 p.m.
Reach Buffalo, 15 hours, 18 hours, 23 hours, 18 hours.
Arrive from Buffalo, 7 p.m., 2 $\frac{1}{2}$ a.m., 12 $\frac{1}{2}$ m., 3 $\frac{1}{2}$ p.m.

Passengers by the Express Train reach Buffalo from New York, and New York from Buffalo, in 24 hours. The Isaac Newton and Oregon connect at Albany with this Train. Baggage cars, with careful baggage masters, run through with all the trains.

For Schenectady, Saratoga Springs & Whitehall, Leave Albany at 7 a.m. and 2 p.m. For Schenectady only at 6, 7 and 9 a.m. and 12 $\frac{1}{2}$, 2 and 7 p.m. For Erie Canal packets at 7 a.m. and 7 p.m. By Plank Road from Schenectady to Saratoga at all hours by stages, etc.

The Eastern Trains leave Albany at 7 a.m. and 3 p.m. The wagons of the company take baggage free between railroads and steamboats at Albany.

E. FOSTER, Jr., Sec'y
Albany and Schenectady Railroad Co.
Albany, August, 1849.

BOSTON AND MAINE RAILROAD.



Winter Arrangement, 1850.

Outward Trains from Boston



For Portland at 7 a.m. and 2 $\frac{1}{2}$ p.m.
For Rochester at 7 a.m., 2 $\frac{1}{2}$ p.m.
For Great Falls at 7 a.m., 2 $\frac{1}{2}$, 3 $\frac{1}{2}$ p.m.
For Haverhill at 7 and 9 $\frac{1}{2}$ a.m., 2 $\frac{1}{2}$, 3 $\frac{1}{2}$, 5 $\frac{1}{2}$ p.m.
For Lawrence 7, 7 $\frac{1}{2}$, 9 $\frac{1}{2}$ a.m., 12m. 2 $\frac{1}{2}$, 3 $\frac{1}{2}$, 4 $\frac{1}{2}$, 5 $\frac{1}{2}$ p.m.
For Reading 7, 9 $\frac{1}{2}$ a.m., 12m. 2 $\frac{1}{2}$, 3 $\frac{1}{2}$, 4 $\frac{1}{2}$, 5 $\frac{1}{2}$, 7 $\frac{1}{2}$, 9 $\frac{1}{2}$ p.m.
For Medford 7 $\frac{1}{2}$, 9 $\frac{1}{2}$ a.m., 12 $\frac{1}{2}$, 2 $\frac{1}{2}$, 5, 6 $\frac{1}{2}$, 9 $\frac{1}{2}$ p.m.
The Station in Boston is on Haymarket Square.

CHAS. MINOT, Super't.

January 10, 1850.

NEW YORK AND HARLEM RAILROAD. NEW ARRANGEMENT.



On and after Wednesday, October



17th, 1849, the Cars will run as follows, (Sundays excepted) until further notice:

Trains will leave the City Hall, New York, for—
Harlem and Morrisania at 6 $\frac{1}{2}$, 8, 10, 11, 12 a.m., 2, 3 $\frac{1}{2}$, 4, 5, 6 $\frac{1}{2}$ p.m.
New Village, at 8 $\frac{1}{2}$, 10, 12 a.m., 3, 5, 6 $\frac{1}{2}$ p.m.
Fordham and Williams' Bridge, at 8 $\frac{1}{2}$, 10, 12 a.m., 2 $\frac{1}{2}$, 3 $\frac{1}{2}$, 5, 6 $\frac{1}{2}$ p.m.
Hunt's Bridge, Underhill's and Hart's Corners, at 8 $\frac{1}{2}$, 10 a.m., 3 $\frac{1}{2}$, 5 p.m.
Tuckahoe and White Plains, at 8 $\frac{1}{2}$, 10 a.m., 2 $\frac{1}{2}$, 3 $\frac{1}{2}$, 5 p.m.
Pleasantville, New Castle, Bedford, Mechanicsville, Purdy's, Croton Falls, and intermediate stations, on signal, 8 $\frac{1}{2}$ a.m., 2 $\frac{1}{2}$, 3 $\frac{1}{2}$ p.m.
Brewster's, Townner's, Patterson, Paulding's, South Dover, Dover Furnace, and Dover Plains, 8 $\frac{1}{2}$ a.m., 2 $\frac{1}{2}$ p.m.

NOTICE—Passengers are reminded of the great danger of standing upon the platform of the cars, and hereby notified that the practice is contrary to the rules of the Company, and that they do not admit any responsibility for injury sustained by any passenger upon the platforms, in case of accident.

Returning to New York will leave

Harlem and Morrisiana at 6 08, 7 $\frac{1}{2}$, 8 37, 9, 10 6, 12 a.m., 1 43, 3 07, 3 $\frac{1}{2}$, 5, 5 47 p.m.
New Village, at 5 53, 8 27, 9 56 a.m., 1 33, 2 57, 5 36 p.m.
Fordham and William's Bridge at 5 $\frac{1}{2}$, 8 14, 9 43, 10 57 a.m., 1 20, 2 44, 5 24 p.m.
Hunt's Bridge at 8 04, 9 33 a.m., 2 34, 5 16 p.m. On signal.
Underhill's, at 7 56, 9 23 a.m., 2 26, 5 10 p.m. On signal.
Tuckahoe at 7 53, 9 18, 10 40 a.m., 2 23, 5 08 p.m.
Hart's Corners at 7 38, 9 03 a.m., 2 03, 4 54 p.m.—On signal.
White Plains at 7 $\frac{1}{2}$, 8 55, 10 20 a.m., 2, 4 47 p.m.
Davis' Brook at 8 40, 10 11 a.m., On signal. 4 39 p.m. On signal.
Unionville, 8 27, 10 11 a.m. On signal. 4 29 p.m.—On signal.
Pleasantville at 8 20, 9 56 a.m., 4 24 p.m.
Champana, at 8 10, 9 50 a.m. On signal. 4 18 p.m. On signal.
New Castle, at 7 56, 9 38 a.m., 4 07 p.m.
Bedford at 7 46, 9 32 a.m., 4 02 p.m.
Mechanicsville at 7 36, 9 22 a.m., 3 52 p.m.
Golden's Bridge, 7 28, 9 17 a.m. On signal, 3 47 p.m. On signal.
Purdy's at 7 20, 9 09 a.m., 3 39 p.m.
Croton Falls, at 7 $\frac{1}{2}$, 9 04 a.m., 3 34 p.m.
Brewster's, at 8 50 a.m., 3 20 p.m.
Townner's, at 8 35 a.m., 3 05 p.m.
Patterson, at 8 27 a.m., 2 57 p.m.
Paulding's, at 8 17 a.m., 2 47 p.m.
South Dover, 8 02 a.m., 2 32 p.m.
Dover Furnace, 7 55 a.m., 2 25 p.m.
Dover Plains, at 7 45 a.m., 2 15 p.m.

The trains for Harlem and Morrisiana leaving City Hall at 6 $\frac{1}{2}$, 8, 10, 11, 12, 2, 4 and 6 $\frac{1}{2}$, returning from Morrisiana and Harlem at 6 08, 7 $\frac{1}{2}$, 9, 12, 1 43, 3 07, 3 $\frac{1}{2}$ and 5 o'clock, will land and receive passengers at 27th 42d, 51st, 61st, 79th, 86th, 109th, 116th, 125th and 132d streets.

The Dover Plains train from New York at 2 $\frac{1}{2}$ p.m., returning leaving Dover Plains at 7 $\frac{1}{2}$ a.m., will not stop between White Plains and New York, (except at Tuckahoe, Williams' Bridge and Fordham), unless to leave passengers coming from above Croton Falls.

A car will precede each train ten minutes to take up passengers in the city. The last car will not stop, except at Broome st. and 27th street.

Freight Trains leave New York at 1 o'clock p.m.—Returning, leaves Dover Plains at 12 o'clock m.
For Sunday Arrangements, see hand bills.

M. SLOAT, Sup't.

LAKE SUPERIOR LINE.
Cleveland and Detroit,

SAULT STE. MARIE, CARP RIVER, COPPER HARBOR, EAGLE RIVER, ISLE ROYAL, ONTONAGON AND LA POINT.

The Proprietors of this line having added largely to their facilities for transportation on this route, will be prepared to ship Goods to any part of Lake Superior during the coming season, and contract for the delivery of Copper Ore to either Boston, New York, or Pittsburg, being connected with the Troy and Western Line, from Detroit to New York, and a Daily line of Canal Boats

FROM CLEVELAND TO PITTSBURG.

Lakes Huron and Erie.

For this portion of the route, the Proprietors are fitting up a large Boat, with a powerful low pressure engine, and a spacious upper cabin, with state rooms, to take the place of the Franklin, which will leave CLEVELAND every Monday Evening at 7 o'clock, and DETROIT every Tuesday Afternoon at 2 o'clock, going to MACKINAW and the BRUCE MINES, and arriving at SAULT STE. MARIE on Thursday morning. The Franklin will leave Detroit every Friday for Mackinaw and Sault Ste. Marie, via the Bruce Mines. For the transportation of heavy masses of Copper, a Propeller will make trips as occasion may require.

Lake Superior.

Mr. McKnight, one of the Proprietors, is constructing a Wharf to the Channel Bank, at the head of the Portage, which will enable them to load their Propellers, NAPOLEON AND INDEPENDENCE, with but 24 hours' detention at Sault Ste. Marie. One of the Propellers will leave every Friday, making a trip through the Lake, touching at Carp River, Ontonagon and Isle Royal.

The great expense incurred in building wharves to facilitate business, it is hoped, will entitle the Proprietors of this Line to Patronage. Goods shipped by either G. WILLIAMS & CO., or S. P. BRADY, Agents, Detroit, will be received through to their destination on Lake Superior. Letters addressed to S. McKnight, Detroit, or Sault Ste. Marie, will receive attention. Supplies will be purchased and delivered at any point on Lake Superior, on the best possible terms, and all orders filled with articles of as good quality as the market affords.

Canada Line.

To facilitate the forwarding of Goods for the Canada Companies, a connection has been made with PARK & CO., managing owners of the Propeller *Earl Cathcart*, forming a direct line from Montreal to the Bruce Mines and Sault Ste. Marie. Goods sent by this line, care of PARK & CO., Amherstburg, or CHAS. HUNT, Esq., Windsor, will be immediately forwarded, and at prices decidedly to the advantage of parties in Toronto or other Canadian Ports.

S. McKnight,
J. R. Livingston,
P. B. Barbeau.

January, 1850.

AGENTS.

G. Williams & Co., Detroit.
S. P. Brady,
P. L. Sternberg & Co., Buffalo.
Charles Hunt, Windsor.
Park & Co., Amherstburg.
W. A. Otis & Co., Cleveland.
Crawford and Chamberlain,
Rice, Clapp & CO., New York.
W. M. Gorrie, Toronto.

MACHINE WORKS OF ROGERS KETCHUM & GROSVENOR, Patterson, N. J. The undersigned receive orders for the following articles manufactured by them of the most superior description in every particular. Their works being extensive, and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and dispatch.

Railroad Work.—Locomotive Steam Engines and Tenders; Driving and other Locomotive Wheels, Axles Springs and Flange Tires; Car Wheels of Cast Iron a variety of patterns and chills; Car Wheels of Cast Iron with wrought tires; Axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and millwright work generally, hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
Patterson, N. J. or 74 Broadway, New York.

CENTRAL RAILROAD FROM SAVANNAH TO MACON, (Ga.) 190 $\frac{1}{2}$ miles.

Passenger Trains leave Savannah and Macon daily at 7 a.m. Passenger trains arrive daily at Savannah, 6 15 p.m. " " " Macon, 6 45 p.m.

This road, in connection with the Macon and Western road from Macon to Atlanta, and the Western and Atlantic road from Atlanta to Dalton, now forms a continuous line of 391 $\frac{1}{2}$ miles in length* from Savannah to Dalton, Murray county, Ga. and with the Memphis Branch railroad, and Stages connect with the following places:

Tickets from Savannah to Macon,	\$5 75
" " " Atlanta,	9 50
" " " Augusta,	6 50
" " " Columbus,	15 00
" " " Opelika,	17 00
" " " Jacksonville, Ala.,	20 00
" " " Talladega,	22 00
" " " Huntsville, Ala.,	
" " " Decatur,	22 50
" " " Tusculum, Ala.,	
" " " Tuscaloosa, Ala.,	28 00
" " " Columbus, Miss.,	
" " " Aberdeen,	25 00
" " " Holly Springs,	
" " " Nashville, Tenn.,	30 00
" " " Murphreesboro,	
" " " Columbia, do.,	
" " " Memphis, do.,	

An extra Passenger Train leaves Savannah on Saturdays, after the arrival of the Steam-ships from New York, for Macon, and connects with the Macon and Western railroad; and on Tuesdays, after the arrival of the Macon and Western cars, an extra Passenger Train leaves Macon to connect with the Steam ships for New York.

Stages for Tallahassee and intermediate places connect with the road at Macon, Mondays, Wednesdays, and Fridays, and with Milledgeville at Gordon daily.

Passengers for Montgomery, Mobile and New Orleans take stage for Opelika from Barnesville through Columbus a distance of 97 miles, or from Griffin through West Point, a distance of 93 miles.

* The Western and Atlantic railroad will soon be completed between Dalton and Chattanooga, a distance of 423 $\frac{1}{2}$ miles from Savannah, of which due notice will be given.

† Head of the West Point and Montgomery railroad, on which the fare to Montgomery is about \$2.

RATES OF FREIGHT FOR MERCHANDISE GENERALLY, FROM SAVANNAH TO MACON.

Measurement Goods.—Boxes of hats, bonnets, furniture, shoes, saddlery, dry-goods, and other measurement goods, per cubic foot 13 cents.
Crockery Ware, in crates, boxes or hhds, per cubic foot 10 "
Goods by Weight, 1st class.—Boxes of glass, paints, drugs & confectionary, per 100 lbs., 50 "
2d class—Sugar, coffee, rope, butter, cheese, lard, tobacco, leather, hides, copper, sheet and hoop iron, tin, hard and hollow ware, rice, boxes soap and candles, bagging, and other heavy articles not enumerated below, per 100 lbs., 45 "
3d class—Flour, bacon, liquors, pork, beef, fish, tallow and beeswax, per 100 lbs., 40 "
4th class—Mill-gearing, pig and bar iron, grind and millstones, nails, spikes and coal, 100 lb. 30 "
Barrels of beets, bread, crackers, potatoes, ice, fruit, oysters, onions, and all light bbls, each, 75 "
Oil and molasses per hhd., (smaller casks in proportion) \$6 00 "
Salt per sack not exceeding 4 bushels, 50 "
Goods consigned to Thos. S. Wayne, Forwarding Agent, Savannah, will be forwarded free of commission. WM. M. WADLEY, Supt. Savannah, Ga., February 24, 1850.

ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY EDMUND DRAPER,

Surviving partner of STANCLIFFE & DRAPER.



No 23 Pear street, near Third, Philadelphia.

GREAT NORTHERN & SOUTHERN MAIL ROUTE. From New York to Charleston, S. C. daily, via Philadelphia, Baltimore, Washington City, Richmond, Petersburg, Weldon and Wilmington, N. C.

Travellers by this route, leaving New York at 4 $\frac{1}{2}$ p. m., Philadelphia at 10 p. m., and Baltimore at 6 a. m., proceed without delay at any point on the route, arriving at Richmond, Va., in a day, and at Charleston, S. C., in two and half days from New York.

Through tickets from New York to Charleston, \$20 00 " " " Baltimore to Richmond, 7 00 " " " Petersburg, 7 50

For tickets to Richmond and Petersburg, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Ticket Office, Pratt Street, Baltimore. STOCKTON & FALLS. October, 1849.

ST. LAWRENCE & ATLANTIC RAILROAD COMPANY.

Notice is hereby given that the Trains run twice per day between Montreal and St. Hyacinth, leaving each terminus alternately, until further notice.

Leaving St. Hyacinth at	7 am.
" " "	3 pm.
Leaving Montreal at	10 am.
" " "	6 pm.

THOMAS STEERS, Secretary.

May 31, 1849.

WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA, GA., TO CHATTANOOGA, TENN. 140 Miles.

PASSENGER SCHEDULE.

Leave Chattanooga daily, Sundays excepted, at 8 $\frac{1}{2}$ a. m. Arrive at Kingston . . . by 12 m. " Dalton . . . by 3 p. m. " Chattanooga . . . by 6 " Leave Chattanooga daily, Sundays excepted, at 7 a. m. Arrive at Dalton . . . by 9 $\frac{1}{2}$ " " Kingston . . . by 12 m. " Atlanta . . . by 4 p. m.

The fare is now permanently reduced to three cents per mile for way as well as through Passengers; children and servants two cents per mile.

There are two Railroad routes from Atlanta to the Seaboard, viz: one by the Georgia Railroad to Augusta, and thence to Charleston by the South Carolina Railroad; the other by the Macon and Western Railroad to Macon, and thence to Savannah by the Central Railroad.

At Kingston, 60 miles north of Atlanta, the Rome Railroad branches off to Rome on the Coosa river, which admits of steamboat navigation as far down as Greensport in Ala. Mail stages are in operation from Rome leading towards Tuscaloosa, Ala., Columbus, Miss., Memphis, Tenn., etc.

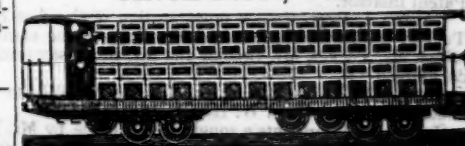
At Dalton, 100 miles north of Atlanta, a line of stages branches off to Knoxville, Tenn., which will be superseded by the East Tennessee and Georgia Railroad as rapidly as the same is completed.

At Chattanooga a number of steamboats are in successful operation on the Tennessee river, and from that terminus of the road stages run to Nashville, which will be superseded by the Nashville and Chattanooga Railroad as rapidly as the same is completed.

WM. D. FULLTON, Supt. Transp.

Transportation W. & A. R. R., Atlanta, March, 1850.

CAR MANUFACTORY CINCINNATI, OHIO.



KECK & DAVENPORT would respectfully call the attention of Railroad Companies in the West and South to their establishment at Cincinnati. Their facilities for manufacturing are extensive, and the means of transportation to different points speedy and economical. They are prepared to execute to order, on short notice, Eight-Wheeled Passenger Cars of the most superior description. Open and Covered Freight Cars, Four or Eight-Wheel Crank and Lever Hand Cars, Trucks, Wheels and Axles, and Railroad Work generally. Cincinnati, Ohio, Oct. 2, 1848.

FOWLER M. RAY'S METALLIC INDIA RUBBER CAR SPRINGS.

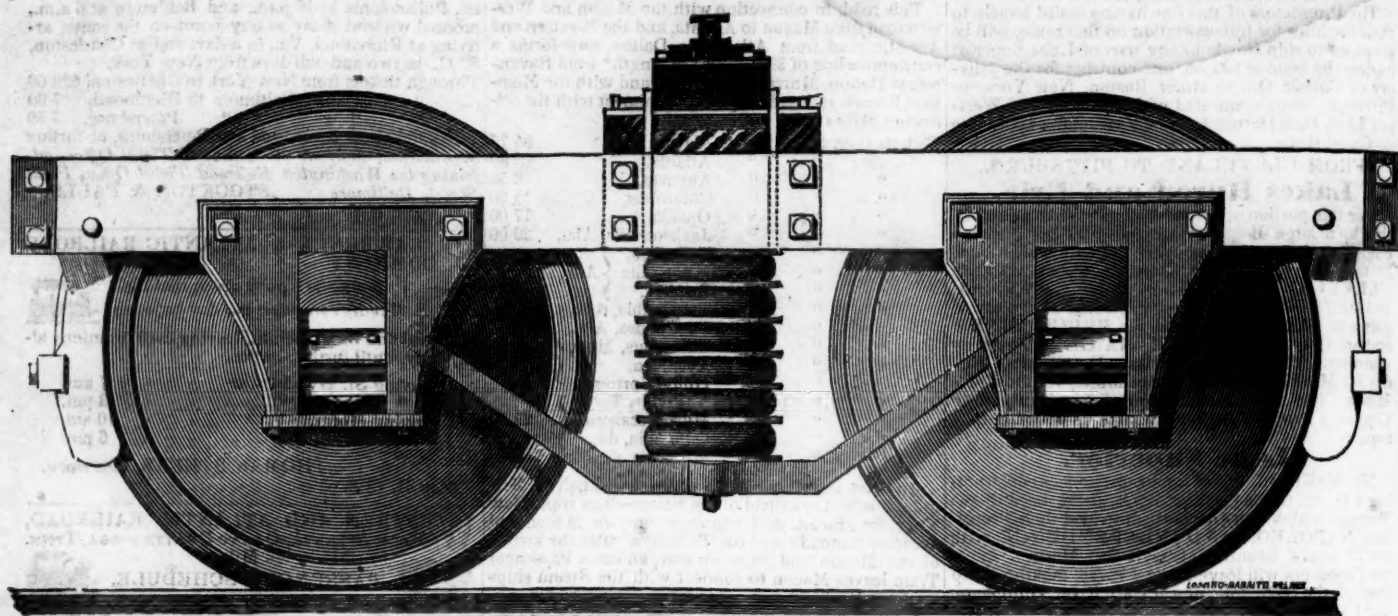


Fig. 1.

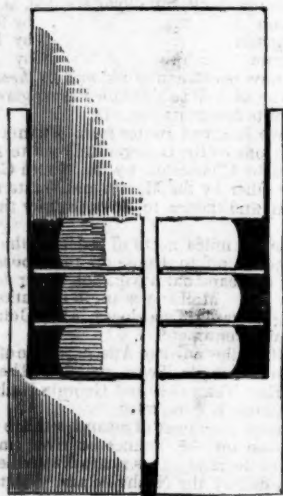


Fig. 2.

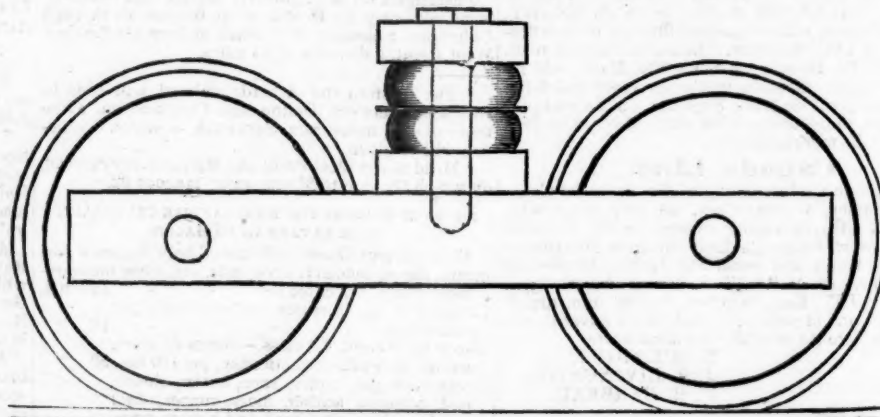


Fig. 3.

So much has been published for the purpose of misleading the public in regard to the inventorship of the India-rubber Railroad Spring, patented in the United States by Mr. W. C. Fuller, that the New England Car Company, proprietors of this invention, have deemed it proper, for the information of Railroad Companies, Car Builders and the public generally, to lay before them the facts upon which they found their claim to this invention, and to a Patent therefor.

Cut No. 1, Represents a cross section of the first model made by Mr. Tucker, under the direction of Mr. Ray, in the summer of 1844, and to which Mr. Tucker, Mr. Bradley and Mr. Bannister testify as being the model marked "B."

Cut No. 2, Represents the model made in 1845, to which Mr. Osgood Bradley and Gen. Thos. W. Harvey have testified.

Cut No. 3, Represents a rough sketch made by Mr. Ray in 1844, which he gave to a man about departing for England to take out some patents, who promised to write to Ray after his arrival in that country—which promise he has probably forgotten.

Mr. W. C. Fuller, of England, patented the above Spring in that country on the 23d October, 1845. He filed his enrollment April 23d, 1846, and on the 22d October, 1846, he took out a patent in the United States under the title, "For Improvement in Railway Carriages," when the improvement consisted in the spring, and not in the carriage.

The reader will perceive by the annexed testimony, that the India-rubber Railroad Car Spring was invented by Mr. Ray about two years previous to the date of Mr. Fuller's enrollment.

The Depositions are omitted for want of room, but will be published in full in the course of a few weeks.

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